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A Quarterly Review of Archaeology



Edited by O. G. S. Crawford, F.S.A.

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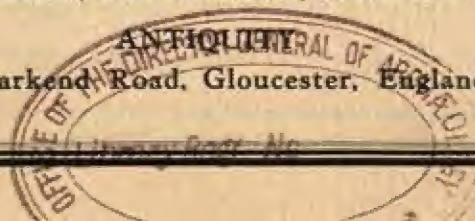
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VOL. X No. 37

MARCH 1936

Editorial Notes

MODERN archaeology is primarily concerned with two main problems:—To construct a secure and rigid chronological framework, and to determine the extent and relationship of cultures. The former is itself a prime necessity, but it is also inextricably interwoven with the latter; and as soon as we begin to investigate the precise relation of one culture to another in a separate region, we are at once confronted with the fascinating mysteries of diffusion. Where were certain technical devices invented? How did they spread over the world? These mysteries deserve the closest scrutiny, for it is the business of science to dispel such (not to mystify). Furthermore, the same process of diffusion is still active and therefore of current interest.



It so happens that several articles in this number illustrate these principles and indeed advance our knowledge of the subjects dealt with. The author of the first article reviews the facts concerned with the origin of iron-working, and a Note (p. 87) touches on the remoter but kindred problem of the origin of metal-working, and suggests certain enquiries. Another article (pp. 25-36) illustrates the diffusion, from civilization to its barbaric fringe, of improved methods of building. The neolithic Rhineland village (pp. 89-93) is an example of primitive conditions, it is true; but, on the other hand, it must also be remembered that it was an *agricultural* community, and as such represented

EDITORIAL NOTES

painting (plate facing p. 440) looked like a fake. 'The background is typical West Coast Mohammedan work, but the figure is evidently copied from some Asiatic source, possibly Persian. No African chief ever had a face like that, or that head-dress or raiment; but you can see them on British Museum post-cards of Persian work'. Agreed; but if this is a fake, then so are the panels of the four evangelists in the Lindisfarne gospels, which 'would seem to have been copied more or less directly' from earlier paintings executed in Italy, probably in the 6th century, and brought to England before 684 by Ceolfrid, Abbot of Jarrow (Gilson's facsimile edn., 1923, 1-3). The parallel is exact; the cultures compared are closely alike, and each borrowed from the repertory of another civilization. To the sophisticated Levantines of the 7th and 8th centuries, the Anglian princelings must have appeared as remote and devoid of significance as an African chieftain appears to some of us today. But the cultural and historical comparison is illuminating, and gives food for reflection.

❧ ❧

Dr Kitzinger's article is an important by-product of the work now being carried out in the Department of British and Medieval Antiquities of the British Museum. That Department deals with Anglo-Saxon sculpture amongst other things. Now it will be obvious to all who read the article that, for the study of this, a large collection of photographs is a basic need. A complete collection of photographs of every fragment of Anglo-Saxon sculpture is actually being formed, with a view to the eventual publication of a *corpus*; some preliminary studies are already in progress. We know that it would be of enormous help to the authorities if any readers who possess (or feel disposed to make) good photographs of crosses and pre-Conquest carvings would send prints to Mr T. D. Kendrick or Dr Ernst Kitzinger, at the British Museum. Such prints will be stamped with the name and address of the owner of the copyright. It would equally help if readers would indicate the existence and present location of any such sculptures as are unpublished and likely to be unknown to students. Crosses are naturally the chief monuments concerned, but nearly all English sculpture relating to the art of the crosses comes within the scope of the survey. On the other hand no attempt is being made systematically to collect illustrations of middle 12th century (or later) tympana, capitals or fonts.

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Students of ancient Africa are expectantly awaiting news and publication of the important excavations at Mapungubwe, in the Transvaal, near the Limpopo, conducted by Pretoria University, and referred to in our numbers for March 1934 (p. 103), March 1935 (p. 101) and Sept. 1935 (p. 358). The excavations have been under the direction of Mr Neville Jones and Mr J. F. Schofield, whose excellent work in the past on the Stone Age in Rhodesia, and the Zimbabwe ruins respectively, inspires complete confidence in their scientific handling and publication of this recent undertaking. It may confidently be expected to throw considerable light upon ancestral Bantu movements and cultures, and thereby indirectly to contribute fresh data to the Zimbabwe problem.

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The Coming of Iron

by G. A. WAINWRIGHT

INQUIRY immediately makes it clear that man must first have come to know iron through meteorites. Except for the great masses at Ovifak in Greenland,¹ which are outside the question, iron from earthly sources is not known to occur in the native state. It does, however, occur in metallic form in meteorites (FIG. 2) and is the only metal to do so. In this form it may be found in solid lumps of metal weighing as much as 50 tons (Bacubirito), 36½ tons (Ahnighito), or 15½ tons (Chupaderos). But of course most of it occurs in much more manageable sizes—in pieces as large as a man's head, a hen's egg, a pea, or only as dust. But all meteorites are not solid iron. Very many are a mixture of iron and stone (FIGS. 1, 3) or what is to all intents and purposes merely stone (FIG. 4), and so useless to man as a source of iron. All meteorites fall into one of these three classes.

In the British Museum (Natural History) Collections there are 289 meteorites of all classes, which have been observed to fall in the hundred years between 1815 and 1914, and of course the total number, which actually fell but were lost or not seen, must have been much greater. Seeing, therefore, that meteorites have been falling at least since Pliocene times,² let us say some 250,000 years or more ago, there must have been plenty of metallic iron lying ready to man's hand when he began to experiment. Moreover, from the accumulated experience of many generations primitive man must have been well aware that 'stones' fell from the sky, even if this was not exactly a daily occurrence.

The sky must have figured large to such people, and it was an unreliable place, whence came all sorts of dangers and unpleasantness. Stars were not always as secure as they might be, they fell from their places without warning; at times they were thrown about in a perfect fusillade, especially when, as we say, the earth was passing through

¹ *Encycl. Brit.* 11th ed., 'Greenland', p. 545. For full details see Flight, *A Chapter in the History of Meteorites*, pp. 26 ff.

² Rickard, *Man and Metals*, 1932, II, p. 848.

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the Leonids ; thunder pealed up there and lightning flashed ; driving rain and stinging hail poured down on man and beast and plant. But hail and rain were not the only missiles that fell. Sometimes it was fire, which at times split and blasted all in its way, and at times left a ' stone ' lying where it had struck. It came in the forms we now call lightning on the one hand, and meteorites on the other. Each was a blinding flash accompanied by cloud and roarings. These we now know to be rain-clouds and thunder-claps in the one case ; smoke and explosions of the white-hot meteorite in the other. Primitive man could not possibly distinguish between them. In fact among us even today educated, but non-scientific, people are very hazy about them, while uneducated man here and all the world over still accepts them as one and the same.

All the mystery of iron proceeds from the facts shortly indicated above. Iron was the thunderbolt, one of the most appalling powers in Nature. It could split or devastate anything it approached. It was dangerous in the first place, and later, when man began to envisage gods for himself, it became sacred also, coming as it did from above. But whether it was considered holy or accursed depended upon the attitude of the thinker towards the god he thought it to represent, and this passed on to the iron man made for himself. Thus, a man purifies himself before daring to extract iron from its ore, a sword made of it has supernatural cutting power, a magic instrument can force death itself and it is good against fairies or evil spirits ; for does it not constitute the missiles with which constant war is waged in high heaven ? These ideas are fundamental and found wherever iron is known throughout the Old World.

Some of the more famous meteorites which have been held sacred are Elagabalus at Emesa and that of Astarte at Tyre, both in Syria ; in Asia Minor, the Magna Mater at Pessinus, Diana of the Ephesians, and the stone which fell at Abydus and was worshipped there ; in Greece the stone at Cassandria and the Stone of Cronus at Delphi ; and in Egypt, as I hope I have proved,³ those of Amun and Seth at Thebes and Cabasa respectively. At Mecca still today the most sacred object is the Black Stone of the Kaabah, which again is a meteorite. Plenty of others could be mentioned as being kept in churches or temples,

³ *Ann. Serv. Antiqq.* (Cairo), XXVIII, 183-7 ; *Journ. Egyptian Archy.* XIX, 49-52 ; XX, 151, 152. For all that proceeds from this confusion of the thunderbolt and meteorite see my series of articles in *J.E.A.*, XVII, ff.

THE COMING OF IRON

but let that of Casas Grandes suffice. It was found in a room of an ancient Mexican temple carefully swathed in bandages.⁴

Not only were meteorites the only source whence primitive man could come by native iron, but we know that he utilized this source. The most ancient pieces of iron are the beads which the present writer found at Gerzah in Egypt about fifty miles south of Cairo. They were in two groups, which were roughly contemporary at s.d. 60-63 of the Sequence Dating used for the predynastic civilization. They thus date to about 3500 B.C. or earlier. At Ur in Mesopotamia Sir Leonard Woolley found fragments of iron. Coming from one of the royal tombs they date to 3000 B.C. at least and perhaps as early as 3500 B.C. Both the Egyptian and Mesopotamian finds have now been analysed, and have been found to contain 7.5 per cent. and 10.9 per cent. respectively of nickel. This proves the metal to be of meteoric origin, for it is the inclusion of nickel which differentiates meteoric iron from that smelted from the ore, which contains none. All meteoric irons have nickel in greater or less proportion, and in three quarters of them it varies between 5 per cent. and 10 per cent. Our earliest specimens of iron are thus scraps from very normal meteorites. In using scraps of meteoric iron while still in the Chalcolithic Age the predynastic Egyptians were in no way unusual. The Eskimos did so, though otherwise only in the Bone Age,⁵ as did the neolithic Indians of Ohio.⁶ The Sumerians of Ur were at that time in the early Bronze Age though later they relapsed into the Copper Age.⁷

However, it now transpires that, though not interested in it, man was able at an extremely early date to smelt his own iron from its ores and manufacture it into weapons. A bronze dagger hilt has been found at Tell Asmar in Mesopotamia. It formed part of an untouched hoard of objects in a closed pot, which had been walled up and plastered over during the 28th century B.C. The object was analysed by Professor Desch who reports, ' . . . a bronze open-work dagger handle, in the slot of which was still wedged a fragment of material evidently derived

⁴ O. C. Farrington, *Cat. of the Meteorites of North America*, p. 111. It is an iron meteorite.

⁵ For example, R. E. Peary, *Northwards over the Great Ice*, II, 559, 561, 612 and cf. *Brit. Mus. Handbook to the Ethnographical Collns.*, 1910, pp. 248 ff.

⁶ Putnam in *The Amer. Anthropologist*, 1930, v, 49; id., in *Proc. Amer. Antiquarian Soc.*, 1882-3, II, 360; Willoughby and Hooton, *The Turner Group of Earthworks, Hamilton County, Ohio* (Camb., Mass., 1922), pp. 50, 51, 65-67.

⁷ Childe, *New Light on the Most Ancient East*, p. 292.

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from the original blade. A lump of similar material was loose inside the handle, being too large to fall through the perforations. On analysis this material proved to be rusted iron, converted as usual by long contact with the earth into a hard, magnetic, crystalline mass. The position in which it was found leaves no doubt that the blade of the dagger was of iron. Moreover, analysis shows that this iron is free from nickel and is therefore not of meteoric origin. . . . The occurrence of an iron object of terrestrial origin at such an early date is most striking, and of the first importance for the history of ancient metallurgy'.⁸ This piece from Tell Asmar and the fragments from Ur are the only scraps of iron yet reported from Mesopotamia before Assyrian times, showing that iron was just as rare there in early days as it was in Egypt. As in Mesopotamia, so will it be seen that in Egypt long before the Iron Age sets in, occasional pieces are to be found of what is apparently man-smelted iron.

In Egypt iron objects are extremely rare until the New Kingdom, and by no means common even then. Thus, over a length of nearly a thousand miles in space and more than two thousand years in time they only appear to consist of the following.

Fourth Dynasty, the famous piece from the Great Pyramid.⁹

Fifth Dynasty, many pieces of chisels, etc. from Saqqarah.¹⁰

Sixth Dynasty, several pieces of a pickaxe from Abusir and a fairly large heap of broken tools from Dahshur¹¹; a lump of iron rust, perhaps a wedge, from Abydos.¹²

Twelfth Dynasty, a large spearhead from Nubia.¹³ (FIG. 5).

Seventeenth Dynasty, a broken chisel-point and a ferrule of a hoe-handle from near Esnah.¹⁴

It is a short and queer list, and much of it very suspicious. The Saqqarah, Abusir, Dahshur, and Esnah pieces are all reported by Maspero. His statements as to the finding, though apparently precise, will not stand scrutiny. They largely occur in footnotes, and were

⁸ In Frankfort, *Iraq Excavations of the Oriental Institute 1932-33* (Oriental Inst. Commun., no. 17), pp. 59-61, and fig. 53, cf. also p. 38 and figs. 30-35.

⁹ Vyse, *The Pyramids of Gizeh*, I, 275, 276.

¹⁰ Olshausen in *Zeits. für Ethnologie*, 1907, p. 373, no. 1.

¹¹ Id., *op. cit.*, p. 374, nos. 2, 3.

¹² Petrie, *Abydos*, II, p. 33. For a good photograph of it and the tools found with it see *Brit. Mus. Guide to the Antiq. of the Bronze Age* (1920), fig. 185.

¹³ MacIver and Woolley, *Buhen*, pls. 86, 88 and pp. 193, 211.

¹⁴ Olshausen, *op. cit.* p. 374, no. 4.

PLATE I



FIG. 1. THE PALLAS METEORITE



FIG. 2. THE KENDALL COUNTY METEORITE



FIG. 3. METEORITE FROM BAREA, LOGRONO



FIG. 4. THE NAKHLA METEORITE

Scale $\frac{1}{2}$

PLATE II



FIG. 5. IRON SPEARHEAD FROM NUHA, UNIVERSITY OF PENNSYLVANIA MUSEUM (See p. 9)

PLATE III

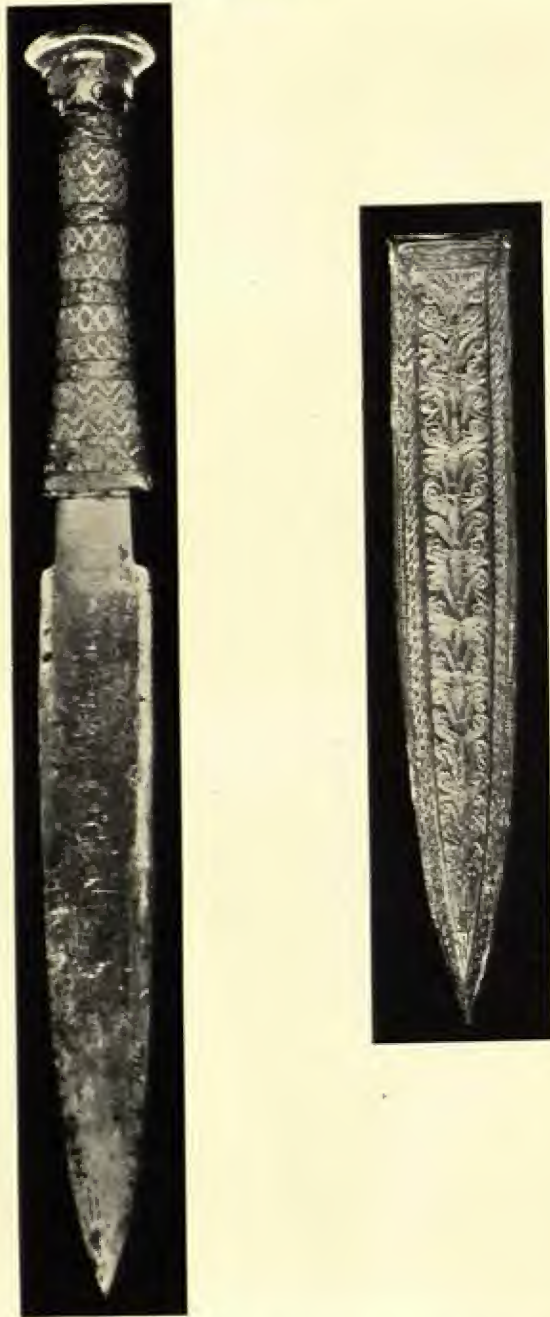


FIG. 6. TUTANKHAMUN'S IRON DAGGER AND GOLD SHEATH, CAIRO MUSEUM (See p. 18)

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written entirely from memory, and Olshausen points out various vaguenesses, discrepancies and mistakes, in the accounts. In fact the statements about the Abusir and Dahshur pieces seem to be two varying accounts of one and the same find. Though a very learned man, Maspero was no archaeologist, nor did the conditions of his work make for detailed observation concerning the small objects. In any case 'pickaxe', 'chisel', and 'ferrule of a hoe-handle' all sound like the refuse of modern, or comparatively modern, times, and are no doubt meaningless as evidence for the early use of iron. The serious pieces are those of the Great Pyramid c. 2900 B.C., the Abydos lump c. 2500 B.C. and the Nubian spearhead c. 1800 B.C. Full analyses have not yet been made of the Pyramid and Abydos pieces, but those which have been showed 'traces' of nickel.¹⁵ This looks as if they were meteoric iron. But if the 'traces' should prove to be only a fraction of 1 per cent., as it sounds, the iron might perhaps have been smelted from an ore.¹⁶ If so, this would have proved a difficulty hitherto, but such would now be disposed of by the finding in Mesopotamia of the unquestionable piece of smelted iron of approximately the same date. Unless we can know definitely that the Pyramid piece is of meteoric origin, and therefore not modern, the probability of Rickard's suggestion is too attractive. He thinks that it may have been a piece of the tool of one of Vyse's own workmen engaged in the excavation,¹⁷ and one knows only too well how such things may slip down, get jammed, etc. The antiquity of Petrie's lump from Abydos has never been in doubt, but it is urgent that its origin also should be decided.

We now come to the Nubian spearhead (FIG. 5) and here unfortunately the difficulties cluster thick, so that whatever view is taken it remains an enigma for the present.¹⁸ Its discovery is recorded in full detail by competent archaeologists, and it was found in the farthest recess of the tomb by the head of the innermost burial. The skeleton was protected from intrusion by several untouched burials lying between it and the entrance. There was no sign of any sort of intrusion of a later date, and the discoverers record the skeleton as 'untouched', though in the photograph, plate 86, the arm and ribs are missing from

¹⁵ Rickard in *Man*, 1927, no. 56.

¹⁶ Though very rare such are known to exist though not near Egypt. Rickard, *Man and Metals*, II, 846.

¹⁷ *Man and Metals*, II, 833, 834.

¹⁸ Fig. 5 is from a photograph kindly supplied by the University of Pennsylvania Museum.

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one side. Apart from the spearhead, the objects, as well as those from the neighbouring graves, are all of normal late 12th Dynasty type and call for no sort of comment. Hence, it seems difficult to doubt the antiquity of the iron spearhead. Yet this object is unparalleled in a number of features. In the first place, as Petrie says of it, 'no such form in iron is known nor any iron weapons till long after this' and it is 'one of the strangest specimens'.¹⁹ He is unable to find any ancient form the least like it among his vast collection of shapes from all over the world. He only finds one exception to this, and that is one of the several spears carried by Absha's followers in the contemporary painting at Beni Hassan.²⁰ But this is only a detail in the picture and may or may not be of value; moreover there is no indication as to whether it was tanged or socketed. A better parallel is provided by the little copper weapons carried by the regiment of model spearmen from Asyut. The form of these may be said to be that of the Nubian spearhead, and they are rather earlier, dating as they do to the Heracleopolitan period, the 9th to 10th Dynasties. They are of course tanged in the usual way and not socketed.²¹

Inquiry from the Pennsylvania Museum, where the Nubian spearhead is now housed, elicits the extraordinary fact that it is not tanged, as would be normal, but socketed. If it really be of the 12th Dynasty, this would make it almost unique. The tang, not the socket, was the invariable method of hafting in the Nile Valley at that time, as it had been from the beginning and continued to be for many centuries after the 12th Dynasty. The present writer only knows of one exception, which is the socketed copper spearhead of earliest 1st Dynasty date from Tarkhan.²²

Then, added to this, there is the material. Iron, as has just been shown, was as good as non-existent in Egypt at that period, as well as before and for long afterwards. Yet, if the spearhead really were of 12th Dynasty date, being nearly a foot long, it would be one of the largest iron objects of any date yet known from Egypt.

On top of all this there now comes a new difficulty. At my request the museum authorities have kindly had the metal analysed, and report that it contains no nickel. This means that the iron is not

¹⁹ *Tools and Weapons*, p. 33, no. 144, and pl. xxxix. This was written before the discovery of the Tell Asmar dagger.

²⁰ Newberry, *Beni Hasan*, I, pl. xxxi.

²¹ Maspero in Grébaut, *Le musée égyptien*, I, pls. xxxiv, xxxv, and p. 32.

²² Petrie, *Tarkhan I and Memphis V*, pp. 10, 21, grave 474, and pls. I, 12, IV, 6.

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meteoric in origin, but smelted by man from the ore. Before the discovery of the Mesopotamian piece of smelted iron a thousand years older still this would have been considered conclusive evidence against the antiquity of the object. But such an opinion is now no longer tenable. Moreover, as will be seen on p. 14, by 1900 B.C., rather before the date of the Nubian spearhead, iron was being worked in Asia Minor on a sufficiently general scale for the manufacture of a throne and a sceptre. It should be noted that Absha's follower, who carries one of the only spears yet known to be the least like it, is from Palestine. It may, therefore, be that the Nubian weapon was an import from some very early iron-working nation in Asia. But, if so, it is curious that it should be the only one of its kind yet known, not only in the whole Nile Valley but also in all Hither Asia.

On the other hand this weapon, which is so difficult to explain as an antiquity, is identical in shape, socket, and material, with the ordinary spearhead used by the Baqqara (Dervishes) today all over the northern Sudan immediately south of Nubia.²³ It is, however, only about two-thirds the size. With that we must leave it; time will tell.

Though clearly not in general use, iron was, however, known and employed, though in ways we might hardly expect. We have already seen it used for decorative purposes, and the inscriptions show that it was also used magically. Egyptian thought soon realized that it was useless to present the deceased relative with every kind of food, if his mouth were sealed so that he could not eat. The problem was to open it, and clearly for such an undertaking the most tremendous power available would not be too much. The mourners, therefore, applied to the high priest of the thunderbolt-city Letopolis, who bore the proud title of Un-ra—'Opener of the Mouth'. He was fitted for this superhuman task by his possession of pieces of bia. Moreover, he was not unaided by the gods of his city, for, as the dead man is assured, the Four Children of Horus of Letopolis 'open thy mouth with their fingers of bia'. This was already recorded in writing in Pyramid times, c. 2600 B.C. The instruments used were plain blocks of bia, an adze of bia, chisels of bia, and, through a process of mythological reasoning, a model bull's leg of bia. Specimens of the adze, bull's leg, and chisels, have been found, and all are made of iron. Bia was, therefore, definitely iron, and was used by the gods and high priest of the Thunderbolt-city, Letopolis. More than this we are told

²³ See for instance E. S. Thomas, *Cat. Ethnograph. Mus. Royal Geogr. Soc. of Egypt* (Cairo, 1924), pl. 206, figs. c, e, and pp. 74, 75, 76, for the description.

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that the instruments were made of 'bia which came forth out of Setesh (Seth, the Storm-god)'. Variant spellings show that the bia for opening the mouth was connected with the stars and was explosive in nature. Thus, the archaeological evidence shows that the bia was iron and the written record that its value came from its meteoric origin, in other words that it was the thunderbolt.

What more stupendous power could the priest find than the very thunderbolt itself, with which to rend, to blast, open that which was sealed in death! Actually it was a work of supererogation to make the bia into splitting tools such as the adze or chisel. Being the thunderbolt, it had bursting power inherent in itself, as is shown by the use of mere blocks of bia. Being what it was, it is natural to find that in the skies the Storm-god, Seth, used bia with which to repel the evil serpent from the boat of the Sun-god. The Light-god, Horus, at times used bia against his enemies, and, when Seth had fallen into disfavour and had himself become evil, bia was even used against him.

In the Egyptian language the root *bia* has a number of meanings which superficially seem quite unrelated, but actually all arise from the original conception of the meteorite. Bia was intimately connected with Heaven; its gates, walls and vault, were all made of bia, as were the heavenly throne and sceptre of the deceased Pharaoh, and the ropes by which he could descend if he so desired. Even his bones and limbs became transformed into bia. And why not? Primitive man well knew what the sky was made of, for had not pieces of it fallen for him to see? Rain also falls from the sky and the sky is blue like water, so bia also means 'the waters of heaven'. 'Astonishment, marvel, valuable, weight, firmness', are also meanings of bia and self-explained on the realization that it was of meteoric origin. 'To depart from', another meaning, is well said of a star which suddenly begins to fly across the sky, or of a stone which leaves the air for this earth never to return. Perhaps most interesting of all for our present purpose is that bia also means 'coarse-grained red quartzite'. The connexion was no doubt provided by some meteorite of such a texture as FIG. 1, which is a conglomerate of stones embedded in a matrix of iron. This idea evidently lasted late in Egypt, for, writing of several thunderbolts of A.D. 1280, es Soyouti says 'and another [fell] at the foot of Gebel Ahmar upon a stone, and burned it. That stone was taken and melted and several ounces of iron according to the Egyptian *rotl* were extracted from it'. Gebel Ahmar is the famous landmark outside Cairo, the hill of coarse-grained red quartzite which has been

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quarried from early historic times onwards. Es Soyouti's passage not only provides an example of the world-wide connexion between iron and the thunderbolt, but is also a relic of the local Egyptian connexion between a meteorite and coarse-grained red sandstone.

Iron retained its connexion with the storm-god, Seth, down to the end of Egyptian history. It has already been seen that about 2600 B.C. *bia* (iron) was said to have 'come forth out of Setesh (Seth)'. In the first century A.D. Plutarch records that the Egyptians called iron 'bone of Typhon (Seth)'. 'Bone' is a curious expression in such a context, but is explained by a discovery which Professor Petrie made a few years ago. In excavating at Qau, a district sacred to Seth, he found quantities of heavy, black, fossilized, hippopotamus bones with a metallic look. The hippopotamus was sacred to Seth and some of the bones had been wrapped up in bandages and deposited in a tomb. They were evidently sacred things, and no doubt were supposed to be a kind of *bia*, and so gave rise to this superficially strange thought.

Thus, then, the existence of such a substance as iron had long been known to the Egyptians as a natural product. They obtained it from meteorites, called it *bia*, and practically the only use they had made of it was for magical or ornamental purposes.

It is a curious fact that it was not until the Egyptians were beginning to import manufactured iron that they added the epithet *ni-pet* 'of the sky' to *bia*. The first use of the expanded term is apparently in the early 19th Dynasty, c. 1300 B.C., after which it becomes usual, displaces the older *bia*, and finally gives rise to the Coptic *benipe*. The assumption that the form *bia-ni-pet* was early and original has led to much inaccurate writing on the part of students.²⁴

Knossos in Crete has produced a small lump of metal of Middle Minoan IIB age, c. 2000-1900 B.C. It is recorded as iron,²⁵ but Mr Forsdyke tells me that he cannot guarantee this for it has not been analysed.

By this time iron was beginning to be used in Asia in a practical manner. A tablet from Susa of the time of Hammurabi, c. 2200-1926 B.C., speaks of a helmet (or basin?) of *parzillu*, spelt out *pa-ar-zi-li*. This appears to be the earliest occurrence yet known²⁶ of the word

²⁴ For the details about *bia* and meteorites see my article *Iron in Egypt* in *J.E.A.* XVIII, pp. 3-15.

²⁵ Forsdyke in *Annual of British School at Athens*, xxviii, 279, 296, and pl. xxiii, 2.

²⁶ Scheil in *Rev. d'Assyriologie*, 1928, p. 42. This reference was kindly given me by Mr Gadd.

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which, though the ordinary Semitic name for iron, is of non-Semitic and uncertain origin. On account of its ending *-ill* it has been thought to come from Asia Minor,²⁷ though with what authority I do not know. Roughly contemporary with this we have another important statement. In Asia Minor the archives of the Hittite Empire have been found at Boghaz-Keui, the capital city. The earliest of these documents yet translated is an account of the conquests of the king Anittash, who was reigning about 1925 B.C. Among other things he says, 'Then the man of Purushkhanda was commanded (?) with me. He brought me a throne of iron and a sceptre (?) of iron as prescribed'.²⁸ In both cases the word 'iron' is written AN.BAR. This is only the earliest occurrence in a long list of mentions of iron in these documents, which reach down to the end of the Hittite Empire about 1200 B.C. One of these tablets is an inventory of objects in a number of temples. Here iron is the common metal, not the bronze to which one is accustomed in other lands of the Near East. The furniture of many of these temples included a statue of a standing man, one of a seated woman, and one of a bull, all generally of iron.²⁹ Iron is sometimes described as 'black',³⁰ and as one of these passages speaks of 'black iron of heaven from the sky',³¹ it is legitimate to suppose that this epithet distinguished meteoric from smelted iron. Sayce has translated this in *Man*, 1921, no. 97. It is a list of materials and their places of origin, thus—'the gold they bring from the city of Bi . . . the silver from *kuzza* (the mines?) black iron of heaven from the sky, copper and bronze from the city of Alasiya and Mount Taggata'. It is clear, therefore, that though iron had long been smelted by man, the ancients were still quite willing to use such ready-made metal as came their way in the form of meteorites. In these archives there is also the famous letter saying 'As to the good iron about which thou hast written to me: There is no good iron in my "sealed" house in Kissuwadna. It is a bad (time) to make iron, but I have written (ordering) them to make good iron. So far they have not finished it. When they finish it, I will send it to thee. Behold, now, I am sending thee an iron dagger-blade. . . . which thou hast sent have no blades . . . [I have ordered blades] to be made, but so

²⁷ Zimmern, *Akkadische Fremdwörter* (1917), p. 59.

²⁸ Hrozný in *Archiv. Orientalní*, 1929, 1, 281, ll. 74, 75.

²⁹ Id., *Hethitische Texte*, passim (pubd. in O. Weber, *Boghazköi-Studien*, Heft 2).

³⁰ *Keilschrifturkunden aus Boghazköi*, XII, 1, iii, 8; XII, 24, i, 8; xv, 9, iii, 3.

³¹ *Keilschrifttexte aus Boghazköi*, IV, 1, vs. 39. For this and the references in the previous note see Götze, *Kleinasien*, p. 112.



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far they have not finished them'.³² If, as some think,³³ Kizzuwadna was the mountainous country in northeastern Cilicia which the Greeks and Romans called Cataonia, it would correspond with the land well-known to the Assyrians from the 9th century B.C. onwards as Tabal, and where Tebarani still lived in the first century B.C. (Cicero, *ad Fam.*, xv, 4). Just as Keftiu, the coastlands of southern Asia Minor, had been world-famous for metal-work in Tethmosy III's time, p. 17, so was Tabal 750 years later. When in 714 B.C. Sargon captured Musasir far away between lakes Van and Urmiyah, he specified among the vast booty 'cups of the land of Tabal with gold handles' and 'incense burners of the land of Tabal'.³⁴ Mr Gadd tells me that the name is generally accepted as going back to the Sumerian *tibira* '[copper-] smith'. It certainly seems to be old, for a mountain called Tíbar is already mentioned by the time of Narâm-Sin, c. 2800 B.C. apparently near Aram, the far northwestern corner of Mesopotamia.³⁵ Genesis, iv, 22, would, therefore, be correct in making Tubal-Cain 'the instructor of every artificer in brass and iron', for he represents the oldest land where we know stores of manufactured iron were kept and distributed to the world. About 600 B.C. Jeremiah (xv, 12) speaks of 'the northern iron', and Ezekiel (xxvii, 12) says that Tyre imported iron from Tarshish, Tarsus in Cilicia. In verse 19 he names iron as an export from Javan, Ionia.

It will not be forgotten that later still, about 400 B.C., there was a famous nation of iron-workers living in another part of Asia Minor, away to the north on the Black Sea coast. They were the Chalybes, who gave their name, Χαλῦες, to a specially good quality of iron. In yet another part, in Pisidia, there was the city of Seleucia, to which the Greeks gave the epithet ἡ σιδηρᾶ. Thus, from the 20th century B.C. Asia Minor had commonly made and used iron, and for many centuries continued to be famous for its production. At least since c. 1460 B.C. it had disseminated the use of it, whether by trade or, as will be seen shortly, by the outpourings of its peoples and its tribes in the Age of the Great Migrations.

³² Luckenbill in *Amer. Journ. of Sem. Languages*, xxxvii, 206. This is the usual version; Sayce's in *ANTIQUITY*, 1928, II, 227 does not seem to have won acceptance.

³³ Smith in *J.E.A.* viii, 45-47, x, 108-115. Apparently the original reason for putting it in Pontus, as is commonly done, was that a thousand years later Xenophon found famous iron-workers, the Chalybes, living there.

³⁴ Thureau-Dangin, *La huitième campagne de Sargon*, p. 55, ll. 358, 361=p. 79, ll. 30, 38, 39.

³⁵ Dhorme in *Syria*, xiii, 37.

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It is difficult to say how long the iron industry had been established in Asia Minor before we hear of it under Anittash, about 1925 B.C. His use of the words 'as prescribed' suggests that it was of long standing, but to this there may be a difficulty. A mass of correspondence has been found at Kanesh which carries back our knowledge of the country perhaps even as far as 2200 B.C.³⁶ The city was the centre of an important road-system, and actually lies on the road from Boghaz Keui to the later iron countries of Kizzuwadna and Tabal. Yet there is no mention of iron in the correspondence either as AN.BAR or *parzillu*.³⁷ The explanation perhaps lies in the fact that these letters are concerned with trade to Mesopotamia, where, as we know archaeologically, there was no demand for iron. Hence, none would be exported there even if it were commonly used in Asia Minor.

Leaving Asia Minor we come to northern and central Syria. Here we first hear of iron in the list of the temple treasure at Mishrifé-Qatna. It was drawn up at some time before the conquests of Tethmosy (Thothmes) III, who reigned c. 1501-1447 B.C., and includes seven objects of iron, six of which were set in gold.³⁸ Year after year this Pharaoh led his victorious armies into this part of Asia, and in his seventeenth campaign, about 1460 B.C., he received from the land of Tinay 'a silver vessel of the work of Keftiu, together with vessels of iron (bia)'. (Breasted, *Ancient Records*, II, § 537). The precise situation of Tinay is at present unknown, but it was clearly somewhere near Mishrifé-Qatna and on the confines of southeastern Asia Minor. The campaign included such countries as Qadesh, Tunip and Naharain, all in central and northern Syria. Also Tinay exported 'a vessel of the work of Keftiu', a land I believe to be Cilicia and the coastlands to the west,³⁹ and it has just been seen, p. 16, that this area was still famous for metal-work 750 years later. A couple of generations or so after Tinay had sent iron to Tethmosy, the neighbouring country of Mitanni across the Euphrates appears as an iron-producer. Its king, Dushratta, sent two truly royal presents to Egypt, the accompanying inventories of which were found in the archives of Egypt, now known as the Tell el Amarnah Letters. The first of these gifts was sent to

³⁶ But see Götze, *Kleinasien*, pp. 66 ff, who thinks it hardly began as early as that.

³⁷ Cf. id., *op. cit.*, p. 73.

³⁸ Virolleaud in *Syria*, IX, 92, 96.

³⁹ Wainwright in *J.E.A.*, XVII, 26 ff; *Journ. Hell. Studies*, LI, pp. 1 ff; *Palestine Explor. Fund: Quarterly Statement*, 1931, pp. 203 ff. It has otherwise been thought to have been Crete, owing to lack of sufficient evidence and misunderstanding of what there was.

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Amenhotep III (c. 1411-1375 B.C.) and included a very splendidly mounted 'dagger whose blade is of iron'.⁴⁰ There were also two 'hand-rings of iron overlaid with gold whose *mesukku* are set with beautiful lapis-lazuli',⁴¹ and 'a *mittu* of iron overlaid with gold'.⁴² Moreover, there were two other equally splendid daggers, the description of each stating 'whose blade is of *khabalkinu*', a material of which ten other objects were also made.⁴³ The word is one of the unknown ones with which these letters abound, hence the usual translation 'steel' is entirely guesswork at present. The other tablet gives another list of presents which Dushratta sent, probably to Akhenaton (c. 1375-1350 B.C.). It is damaged in many places so that the only iron he got seems to have been 'ten thin hand-rings of iron overlaid with gold; thirty shekels of gold were used thereon'.⁴⁴ Akhenaton's successor, Tutankhamûn, about 1350 B.C., possessed a splendid dagger with a heavy iron blade (FIG. 5), two massive amulets of iron, and sixteen chisels with tiny iron blades.⁴⁵ Such frail instruments as these latter could have served no practical purpose, and to the present writer there can be no doubt that these are the magical chisels of bia, with which the mouth of his mummy was opened. The dagger gives an idea of the magnificence of the weapons sent by Dushratta, and of course there is always the possibility that it is actually one of them inherited by Tutankhamûn from Amenhotep III. The manufacture of iron daggers was evidently a speciality of this part of the world, whether in Mitanni or Kizzuwadna. In view of the export of blades from this last country it is interesting to note that Tutankhamûn's looks as if it did not belong to its hilt.

At about the time of Dushratta and Amenhotep III, a very splendid burial of Late Minoan Age was made at Minet el Beida on the north Syrian coast. It produced a quantity of beads and rings, not only of gold and silver but also of iron.⁴⁶ Another indication of the importance of all this part of the world for the iron industry is provided by Jupiter Dolichenus. He was god of Doliche, a town actually situated on the road from Cataonia and Tabal to Mitanni. Somehow iron clearly figured there largely, for in the Roman age the phrase *ubi ferrum*

⁴⁰ Knudtzon, *Die el-Amarna-Tafeln*, I, p. 163, l. 16.

⁴¹ Id., p. 163, ll. 1, 3.

⁴² Id., p. 159, l. 38.

⁴³ Id., p. 159, l. 32; p. 169, l. 7; p. 173, l. 49.

⁴⁴ Id., p. 201 l. 28.

⁴⁵ Howard Carter, *The Tomb of Tut-ankh-amen*, II, pls. LXXVIII, LXXXIII, LXXXVIII; III, pl. XXVII. Mr Carter only considers the chisels to be samples of the new metal.

⁴⁶ Schaeffer in *Syria*, x, 292.

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nascitur 'where iron is born' is often added to the name of the god.⁴⁷ In view of all this it is perhaps remarkable that, in his northern campaigns, Tethmosy III did not receive more iron than the one lot from Tinay.

Pursuing our enquiry still further out from Asia Minor, we find that people from this sub-continent were already roaming over Syria at the time of the Tell el Amarnah correspondence, c. 1375 B.C. They were the Lukki (Lycians), who also about 1287 B.C. were among the Hittite allies defeated by Ramesses II at Qadesh in central Syria (Breasted, *Ancient Records* III, §§ 309, 312). At Qadesh there were also Kelekesh who can hardly be other than Cilicians, and Kezwenen (Breasted, §§ 306, 309, 312, 349), that is to say people of Kizzuwadna, the land where the Hittite stores of iron were kept. The pictures show a few Philistines at Qadesh also, but it will be another hundred years before they come in force about 1190 B.C.⁴⁸ and there is much evidence that they also came from Asia Minor.⁴⁹

With people from the homeland of iron-working roaming all over Syria, it is not surprising that this is the period at which iron became common in Palestine. At Gezer in central Palestine two large pieces of iron, measuring about four inches in width and one in thickness, were found together in a water passage which had been sealed up about 1500 or 1400 B.C.⁵⁰ By the time of the 19th Egyptian Dynasty, c. 1300-1200 B.C., iron had become the regular metal at Gerar in south Palestine, of which were manufactured knives, dagger-knives, spearheads, lance-heads, chisels, borers, hooks and sickles. A little later, say between 1200 and 1100 B.C., there were a number of very large iron implements, consisting of an iron pick originally weighing some six pounds, two large hoes, two plough irons, and a large adze. The furnaces were also found, showing that the iron was worked on the spot. The two earliest ones were datable to about 1175 and 1100 B.C. respectively.⁵¹ At Megiddo in northern Palestine an iron foundry was discovered with quantities of iron ore, ash, scoriae, and numbers of manufactured iron implements, including ploughshares, hoes of various sorts, spearheads,

⁴⁷ A. B. Cook, *Zeus*, I, 630 ff.

⁴⁸ Breasted, *Ancient Records*, IV, §§ 44, 64, 71, 81, 82, 129, 403. For all this see Wainwright in *Pal. Explor. Fund: Quart. Statement*, 1931, pp. 207, 212.

⁴⁹ *P.E.F.*: Q.S. 1931, pp. 203-16.

⁵⁰ R. A. S. Macalister, *The Excavation of Gezer*, II, pp. 269, 270 and fig. 417.

⁵¹ Petrie, *Gerar*, pp. 14-16.

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a small chisel, a sickle, knives, rings, and many nails, etc.⁵² The date of this is uncertain, but in any case it is probably before 926 B.C.⁵³

At Carchemish on the Euphrates in north Syria the Bronze Age ended with the destruction of the city at the end of the 13th century B.C. The conquerors were iron users and had affinities with the west and northwest—in other words with the Asia Minor which has figured so largely in this story.⁵⁴ By about 1100 B.C. a cemetery of the full Iron Age was in process of formation there.⁵⁵

At this time the Assyrian king Tiglath-Pileser I, c. 1115 B.C., states that he killed four wild bulls, using among other weapons his 'iron (*parzilli*) arrow (?)'⁵⁶

Og's bedstead of iron (Deuteronomy, III, 11) is well-known, and the 'chariots of iron' of the inhabitants of Beth-shean, Jezreel (Joshua, XVII, 16) and the Judæan Plain (Judges, I, 19) struck terror into the Hebrews. Later, about 1100 B.C. Sisera's 'nine hundred chariots of iron' (Judges IV, 3) are famous, as is Goliath's spearhead of 'six hundred shekels of iron' (I Samuel, XVII, 7) at something before 1000 B.C. What is perhaps not so well-known is that Barzillai, the name of David's friend, only means the man 'of iron' (II Samuel, XIX, 31 ff.)

After this iron becomes a commonplace. For example in Assyria Assurnazirpal (884-858 B.C.) likens the peaks of the mountains to the 'point of an iron dagger',⁵⁷ used iron picks for road-making⁵⁸ and carried off iron in quantities from many cities and lands.⁵⁹ Shalmaneser III (859-824 B.C.) did the same and used the same simile,⁶⁰ and Adad-nirari IV (810-781 B.C.) carried off iron also.⁶¹ Of the various builders of the Ishtar temple at Asshur, Shalmaneser III was the first to include iron in his foundation deposits.⁶² Tiglath-Pileser III (745-727 B.C.) put 'chains of iron' on a prisoner, as did Sargon (722-705 B.C.) and Sennacherib (704-682 B.C.)⁶³ Similarly, when Gyges of Lydia sent

⁵² Schumacher, *Tell el-Mutesellim* I, pp. 130-2, figs. 192-4 and pl. XLII.

⁵³ Watzinger, *Tell el-Mutesellim*, II, pp. 80, 81.

⁵⁴ Woolley, *Carchemish*, II, pp. 48, 49; Id. in *L.A.A.A.* VI, 98.

⁵⁵ Id., in *op. cit.*, VI, especially pp. 88, 98.

⁵⁶ E. Schrader, *Keilinschriftliche Bibliothek*, I, p. 39. Future reference to this work will be given as Schrader.

⁵⁷ Schrader, pp. 61, 77. ⁵⁸ Ibid., p. 83. ⁵⁹ Ibid., pp. 67, 107 twice.

⁶⁰ Ibid., pp. 145, 147, 155, 161, 163 twice. ⁶¹ Ibid., p. 191.

⁶² Andrac, *Die jüngeren Ishtar-Tempel in Assur*, p. 57.

⁶³ Schrader, II, pp. 15, 67, 103, cf. p. 93; Winckler, *Die Keilschrifttexte Sargons*, pp. 33, 83, 87, 117.

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the Cimmerian chiefs to Asshurbanipal, he did so 'in chains, iron fetters and iron bands'.⁶⁴ Sargon mentions iron among the offerings he made in the temples at Babylon, and among the foundation deposits for his new palace.⁶⁵ The foundation deposits have been found scattered in the layer of sand under the walls, and among them were a number of little 'barils' of much oxydized iron.⁶⁶ Iron indeed was nothing accounted of in his days, for one of the many store-chambers of this palace at Khorsabad was found to contain nothing but ingots and tools of iron, sorted and stacked according to class. The total weight was estimated at 150 tons and more. One of the stacks formed a mass $5.80 \times 1.40 \times 2.60$ metres. Elsewhere were piled pickaxes, hoes, hammers, ploughshares, shoes for door pivots, etc., etc. There was also a mass of grappling irons, which consisted of hooks and chains, which were rather more than a metre in length, and weighed nearly 50 lbs. apiece. The iron was scarcely tarnished and was of good clean metal which rang with a sharp clear note when struck. The smith of the expedition, a native, used much of it and declared it to be in no way inferior to the Persian, which was the best modern iron of which he knew. The villagers fitted one of the ploughshares to a plough of their own where it gave complete satisfaction.⁶⁷ Iron helmets and quantities of iron scales from coats of mail, both sometimes inlaid with copper, were found at Nineveh in the same room as objects bearing Sargon's name.⁶⁸

On the confines of this area we have Cyprus, Greece and the Aegean on the west, and Egypt to the south. Here progress was much the same though rather slower, and in Egypt the change was not accomplished till Roman times. In Greek lands the oldest iron artifacts yet known are finger-rings of Late Minoan I date c. 1500 B.C.⁶⁹, though the passage from bronze to iron did not begin until about 1100 B.C.⁷⁰ In Cyprus a few ornaments of iron have been occasionally found in the Late Bronze Age. It is about 1200 B.C., at the opening of the Iron Age,

⁶⁴ Schrader, II, 175.

⁶⁵ Schrader, pp. 73, 77

⁶⁶ Pillet, *Khorsabad*, p. 80, contents of box 4.

⁶⁷ V. Place, *Ninive et l'Assyrie* I, pp. 84-89, pls. 70, 71. Some of the ingots are now in the Louvre at Paris, where I obtained some fragments. Prof. Desch's analysis showed them to be smelted from the ore.

⁶⁸ Layard, *Nineveh and its Remains*, 1849, I, 341. 'The Khorsabad king', pp. 342, 343, is Sargon. There had also been bronze armour there.

⁶⁹ Forsdyke in *Ann. Brit. School at Athens*, xxviii, 296.

⁷⁰ *Cambridge Ancient History*, II, 447.

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that iron swords begin to come into use, but they do not displace the bronze ones until about 1000 B.C. and later.⁷¹ Egypt still keeps on in the Bronze Age. After the earlier iron recorded above, the only pieces are a stud from a box and a finger-ring which appear to be of 18th Dynasty date, and a pin of this date is known from Abydos. An iron sickle was found under a sphinx of the late 18th or early 19th Dynasty, and thus would be of the time of Tutankhamûn or shortly afterwards. Then there is an iron bracelet of the 19th or 20th Dynasties, and a halbert which is probably of the age of Ramesses III (1198-1167 B.C.) This king records that he made a statue of a god out of iron, *bia-ni-pet*. Three iron pins, each 2½ inches (6 cms.) long were used for fastening a coffin of the 21st Dynasty (1090-945 B.C.) and several knives are known of Ramesside age or later. A group of iron bracelets dates to about the 22nd Dynasty (945-745 B.C.) as does a short bar of wrought iron and the scraps of iron found with it.⁷² There is a small figure of Horus cut out of a flat sheet of iron.⁷³ It is undated but is no doubt quite late. Assurbanipal records the booty he carried off when he sacked Thebes in 663 B.C. The absence of iron from the list⁷⁴ is in noticeable contrast to the harvests that had been garnered by the Assyrians for 200 years from the cities of Syria and Palestine. In 667 B.C. he had sent Necho I back to Egypt as a tributary king, including in the insignia 'an iron sword for his belt'.⁷⁵ It is, therefore, significant that the earliest group of iron implements in Egypt is a set of tools of non-Egyptian type. It was found at Thebes with a bronze helmet of a well-known Assyrian shape.⁷⁶ They must, therefore, have been left behind in one of Assurbanipal's two occupations of Thebes in 667 and 663 B.C.⁷⁷ About 654 B.C. Psametik gained his independence of Assyria and hegemony over the local dynasts with the help of 'Greek' mercenaries. They were really Lydians sent by Gyges⁷⁸ and Ionians and Carians (Herodotus, II, 152, 154). With them Asia Minor once again appears on the scene, and the excavation of their cities of Naukratis and Daphnae in the Egyptian Delta has shown them to be in the full

⁷¹ Myres, *The Cesnola Collection: Antiquities from Cyprus*, pp. xxxi-xxxiii.

⁷² For all these see *J.E.A.*, xviii, pp. 14, 15.

⁷³ Wiedemann in *Proc. Soc. Bibl. Archy.*, 1914, p. 58, no. 22 and pl. v.

⁷⁴ Schrader, II, pp. 167, 169.

⁷⁵ *Op. cit.*, p. 167.

⁷⁶ Petrie, *Six Temples at Thebes*, pl. xxi and pp. 18, 19.

⁷⁷ *Camb. Anc. Hist.*, III, 283, 285.

⁷⁸ Schrader, II, p. 177, ll. 114, 115.

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Iron Age. An iron sword, which might well be before this date, was found at Abydos,⁷⁹ and by the end of the dynasty iron was becoming sufficiently common for it to begin to appear among the foundation deposits. Haa-ab-ra, the Hophra of the Bible and the Apries of the Greeks (589-570 B.C.), included it among his at Abydos,⁸⁰ though neither Psametik I before him, nor Amasis after him (570-526 B.C.) did so in their deposits at Defennah and Nebeshah respectively.⁸¹

From these facts the following conclusions emerge. Iron was originally known through its occurrence in meteorites. As meteorites are not, even yet, fully distinguished from thunderbolts, iron was, and in many places still is, considered a dangerous substance. Its supposed explosive powers were used magically in Egypt for some thousands of years before smelted iron was at all well-known. During these ages it had been called *bia*, and curiously enough it was not until smelted iron was being imported that in the 14th century the addition *ni-pet* 'of the sky' was added. Although an occasional object of iron may be found, it is not until after the 15th century that one may expect to meet with iron here and there in Egypt. Actually Egypt was the last country of the Near East to enter the Iron Age, and then only under an intensification of northern influences. While Mesopotamia had known meteoric iron from before 3000 B.C. it also knew smelted iron as early as some time before 2800 B.C. But until 1100 B.C. iron was evidently as rare there as in Egypt. From the 20th century onwards Asia Minor had used iron regularly, some of it apparently meteoric, and here lived the important iron-workers of Kizzuwadna and Tabal-Tubal, as well as the Chalybes, and the inhabitants of the city called by the Greeks *ἡ σιδηρᾶ*. The name of the second of these nations is to be found in the Sumerian *tibira* 'a smith'; while the third gave its name to a good quality iron in Greek; and, as some think, Asia Minor provided the Semites with their word for iron, *parzillu*, *barzel*. From the 15th century onwards Asia Minor, north Syria, and northwest Mesopotamia had exported iron objects, largely daggers and dagger-blades, though iron was still much used in jewellery. In this district the storm-god of Doliche was somehow connected with iron. It was clearly the

⁷⁹ Petrie, *Abydos*, II, pl. XXII, 12 and p. 33.

⁸⁰ Id., *op. cit.*, I, pl. LXX, 9 and p. 32.

⁸¹ Id., *Defenneh*, pl. XXII and p. 55; *Nebeshah*, pl. V and pp. 14, 15; both are bound with *Tanis* II.

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wanderings of the Asianic tribes in the 14th and 13th centuries that brought the Iron Age to Palestine. By 1100 B.C. Assyria, Carchemish, Cyprus, and Greece and the Aegean, were entering the Iron Age, and by the 8th century Sargon of Assyria had laid up in his storehouses 150 tons or so of good iron. His ingots were of the curious shape which 200 years later was entering Germany and France with the La Tène period of the Iron Age.⁸² Evidently the knowledge of iron-working did not radiate only to the south.

⁸² Déchelette, *Manuel d'archéologie : premier âge du fer*, p. 546, fig. 226.

Pits and Pit-dwellings in Southeast Europe*

by WERNER BUTTLER

IN connexion with the publication of the report on the neolithic settlement at Köln-Lindenthal I undertook, in the autumn of 1933, with the support of the Notgemeinschaft der deutschen Wissenschaft, two months' exploration in Hungary, Rumania and Jugoslavia. Apart from museum researches in prehistory the chief object of this journey was to study the building methods of the primitive peasant cultures in these countries. In compiling the report on the 'band keramik' settlement at Köln-Lindenthal it was found necessary, in order to elucidate many of the finds, to compare them with ethnographic material from settlements peopled by primitive peasants in modern Europe. This method proved no less helpful than when employed earlier by Oelmann, Menghin¹ and others in dealing with other prehistoric studies. Prehistoric cultures invariably comprise objects the use of which can only be ascertained by comparison with cognate ethnographic or cultural material. For, owing to the conservative character of the peasant, modern primitive peasant cultures have retained certain structures and institutions which are derived, without a doubt, from archaic, even neolithic prototypes. Comparison of modern material with our prehistoric finds by no means postulates a direct historic connexion between the two, especially when the objects compared are widely separated in place, culture, nationality and race. Rather is ethnography called in to furnish a sound basis for assumptions about our finds by relating them to similar phenomena of modern times.

The excavation of prehistoric sites has revealed a number of architectural and other structures hollowed out in the ground. The object of my journey was to find modern parallels to these structures, in

* From the *Bonner Jahrbücher*, CXXXIX, 134-44, Darmstadt, 1934, by permission of the Editor.

¹ F. Oelmann, 'Hausurnen oder Speicherurnen?' *Bonn. Jahrb.* 134, p. 1 ff.; 'Das Speichermodell von Melos', *Athen. Mittl.* I, p. 19 ff.; Menghin, *Weltgeschichte der Steinzeit*. Vienna, 1930.

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which work I was fortunate in receiving encouragement and help from colleagues in the museums of ethnology and prehistory in all the countries traversed. The various structures of this nature described below should present many features of interest to the student of prehistory. As in making my records I endeavoured to interpret all that I saw in the light of prehistory and our own excavations, I will point out such features as I come to them.

1. CLAY- AND RUBBISH-PITS

Szemet-Gödör, near Debreczin, Hungary, is a settlement of gypsies and poor day-labourers, mostly living in pit-dwellings whose walls are of stamped clay dug on the spot next to the huts. The clay-pit is worked as long as the particular owner needs clay, and acquires a quite irregular shape. The pit shown in FIG. 1a had a maximum depth of 80 cm. and at one side its wall was undercut. When the necessity for digging the clay ceases such a pit serves as a rubbish-hole and gets gradually filled in.

The interest of this pit to a prehistorian lies in its close resemblance to an irregularly shaped neolithic pit-dwelling with its undercut walls. Many of our neolithic 'dwellings' were possibly nothing but clay-pits.

Throughout the Balkans we find irregular clay-pits of this type. In Rumania the wall is often deeply undercut,² the upper soil and clay strata being unsuitable for building purposes. Peasants often get killed by the sudden collapse of the upper soil.

At Szemet-Gödör I observed pits for kitchen refuse in front of every house; but they were also used for throwing building rubbish in after the building or alteration of a house. They were either square or roughly circular. The pit illustrated (FIG. 1b) was 2.30 m. long by 0.80 m. deep. When such a pit is full, which according to the inhabitants takes from five to twelve months, a new one is dug close by if there is no abandoned clay-pit convenient. The rubbish-pit shown is very similar in shape to the neolithic pits.

In the case of one pit-dwelling (FIG. 9b') the oval rubbish-pit was placed directly in front of the door, a proof that convenience appeals more to some primitive folk than hygiene and fresh air.

2. STORAGE-PITS

The practice of storage in pits lying apart from the dwelling is still practised today by the simple peasants of southeast Europe. Even

² Personal communication from Dr Nestor of Bucharest.

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in villages where the farms have long had modern cellars under their houses, the poorer peasants keep their stores in the old way. These pits should not be confused with the *Mieten*³ for beet and the like employed in Germany, for in contrast to these they have a long tradition behind them and are always covered or have a hut-like roof.

According to the goods stored we may distinguish: grain-pits, pits for root vegetables, pits for fruit and green vegetables.

In Banat a hive-shaped grain-pit (FIG. 1c: model in the Ethnographic Museum, Belgrade) measures 0.50 m. across the top, 2.30 m.

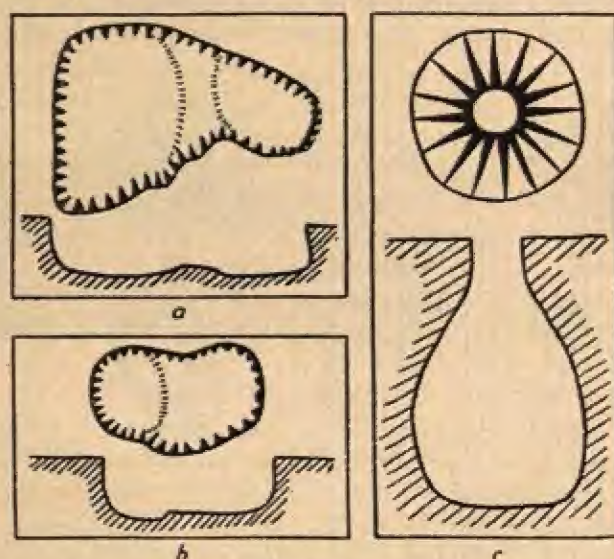


FIG. 1. a, CLAY-PIT; b, RUBBISH-PIT; c, GRAIN-PIT

across the base and 3.30 m. in depth. Grain-pits of this character were customary in Hungary (the Theiss plain), Banat and Wallachia until a few decades ago. The walls were usually hardened by fire. Over the entrance-hole, through which the interior was reached by a ladder or climbing-plank, was a protective covering in the shape of a wooden (cf. FIG. 3) or stone⁴ superstructure; or, as in other instances, the opening was closed with a wooden slab, as in the pit shown in FIG. 2. Nowadays grain-pits are little used except in certain primitive districts

³ *Miete*, stack: the word originally denoted a heap of beet or the like stacked in a pit; later it was used for the pit.

⁴ Photos in the Ethnographic Museum, Budapest.

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of Rumania (the Dobrudja), where they are often made in the house (pit-dwelling, *bordeu*), under the bed.⁵

Exactly similar constructions dating from prehistoric times, and in part undoubtedly used as storage-pits,⁶ have been found in the Danube countries. They resemble in principle the conical pits so frequently found in the La Tène culture of Central Europe, which we may therefore also assume to have been used as storage-pits.

Isolated cases of a thoroughly primitive storage-pit used by poor folk occur at Kótaj, province of Szabolcs, in northeast Hungary. FIG. 2 shows a round pit, 1.5 m. deep, surmounted by a contrivance of crossed sticks covered with straw and mud. The pit can only be reached

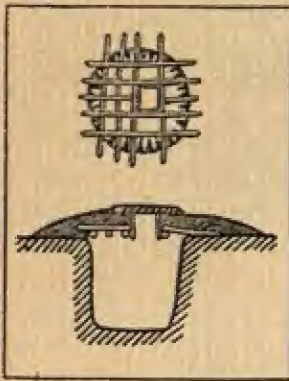


FIG. 2. PRIMITIVE STORAGE-PIT

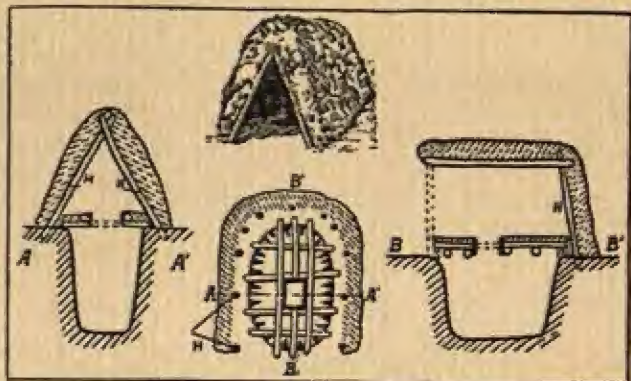


FIG. 3. GRAIN-PIT

through a square hole in this contrivance, which is lined with boards and can be closed by means of a large stone. At nearly all the prehistoric sites excavated have been found deep hollows of this kind, most of which may well be regarded as storage-pits. This Hungarian example shows clearly how over such a storage-pit quite a simple roof-cover might be set up.

FIG. 3 shows an advance upon the above contrivance. Here a pit

⁵ Personal communication from Professor Vuia of Klausenburg (Kluj).

⁶ Cf. J. Söregi, *Das Problem der in die Erde gegrabenen bienenkorbformigen Gruben*. Debreczin, 1932. Söregi's identification of the conical pits as clay-pits connected with pot-making cannot be accepted as of universal validity. His main arguments against the theory that they were storage-pits—that the walls of modern storage-pits are always fired and that conical- or hive-shaped pits are found only in clay soil—are by no means always applicable.

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deeper than it is wide is covered in a similar manner to that in FIG. 2 ; but for additional protection there is erected over the whole a $1\frac{1}{2}$ m. high sloping roof consisting of wooden stakes covered with straw. It is open in front and the pit is accessible from the surface.

In the Rumanian village of Vältcele I saw potato storage-pits with the entrance-hole in the side. The rectangular pit shown in FIG. 4 is cut in sloping ground and has at one side in front a shallow ramp which serves for entry. The fruit kept in the pit is removed by hand through this side-opening in a basket or other receptacle. The superstructure consists of two strong crossbeams (Q) forming an abutment to a bed of sticks packed with straw and mud.

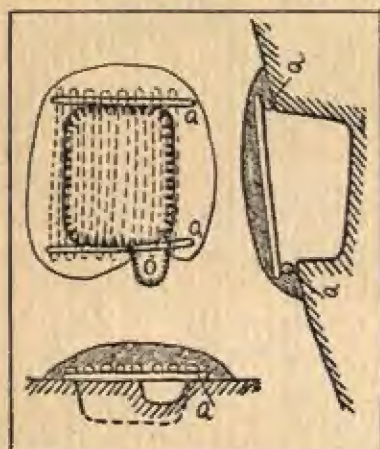


FIG. 4. POTATO STORAGE-PIT

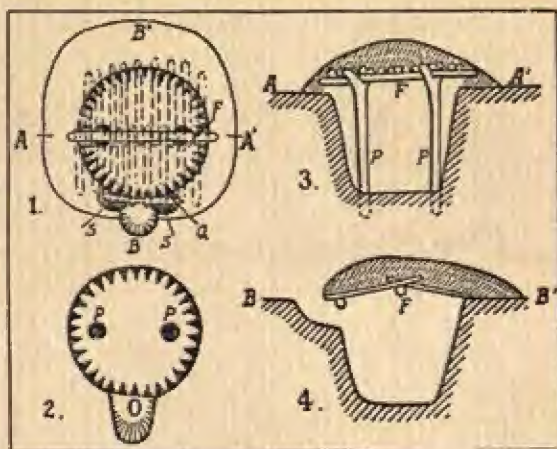


FIG. 5. POTATO STORAGE-PITS

The storage pit shown in FIG. 5 and in no. 6 in the PLATE follows a similar principle. Although situated on level ground it has the same sort of side-opening as that in FIG. 4. The cover, consisting of rows of sticks heaped with straw and mud, is borne on a transverse ridge-piece (F) resting on two posts (P) forked at the tops. At each side of the opening lies a stone (S), across which rests a beam as support for a cover.

These storage-pits with side-openings have a very long tradition behind them. Constructions with a plan closely resembling that of FIG. 5 (2) were found in neolithic 'band keramik' settlements (Köln-Lindenthal,⁷ Stützheim in Alsace,⁸ Herkheim near Nördlingen⁹).

⁷ Buttler and Haberey, *Die bandkeramische Ansiedlung von Köln-Lindenthal*, p. 21 (5)

⁸ *Anz. f. els. Alt.*, 1910, 5, p. 217 ff. ⁹ *Germania*, 1923, VIII, 82, fig. 1 (Kb).

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Professor Oelmann has drawn my attention to the storage-pits of this type found also in excavations of later date (Là Tène settlements at the Basel gas-works and at Graurheindorf near Bonn¹⁰). Post-holes on the floors of prehistoric storage-pits are likewise not unknown (Köln-Lindenthal,¹¹ Plaidt, ¹² Praunheim¹³).

Another type of potato storage-pit with side-entrance is shown in FIG. 6 and no. 5 in the PLATE. This type occurs almost everywhere in Hungary. Over the long rectangular pit (c. 1½ m. in length) rises a hut-like superstructure made of sticks packed with straw and mud.

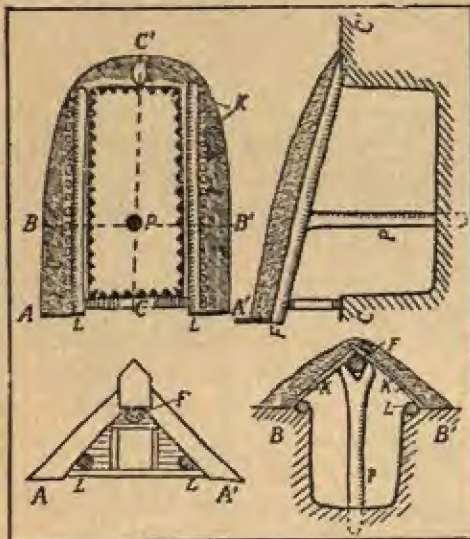


FIG. 6. POTATO STORAGE-PIT

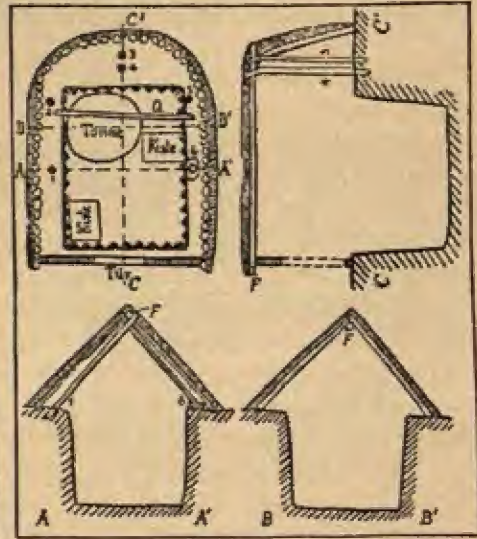


FIG. 7. MODERN STORAGE-PIT

The front opening is in the low gable, and at the back the superstructure slopes down to ground level. The gable-end, consisting in this instance of boards—though gable-ends of stamped clay or unbaked brick have been found—supports a ridge-pole (F), the back end of which rests on the surface soil. On either side of this pole a number of closely placed sticks (K) run to ground-level behind two poles placed one against each side of the ridge-pole. In the structure illustrated the

¹⁰ *Anz. f. Schweiz. Alt.*, 1913, xv, p. 1 ff, fig. 3, pit 32; *Bonn. Jahrb.*, 139, p. 211.

¹¹ *Op. cit.*, pl. 21 (7).

¹² *Bonn. Jahrb.*, 122, plan, pl. xxiv, pits 67, 77.

¹³ *Schriften des Hist. Mus. d. Stadt Frankfurt/M.*, II, p. 55, fig. 1, pit 7.

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ridge-piece rests on a gable-pole (P), but storage-pits of this type exist that have no such support.

FIG. 7 shows a complicated type of modern storage-pit at Băneasa near Bucharest. Over a rectangular pit $1\frac{1}{2}$ m. deep with almost vertical sides stands a low gabled hut with an apsidal ground plan, the triangular space made by the gable forming a large door. The ridge-pole (F) rests in front on the gable-beams, at the back on the two closely placed forked posts 3 and 4, and is also supported by the posts 1-6 and 2-5, of which 1, 2 and 5 are staked in the ground while 6 rests on a flat stone. To this framework are then added a close row of wooden sticks only lightly staked in the ground and daubed on the outside with clay.

This structure will interest the prehistorian for two reasons. Firstly, it displays, as does the previous Hungarian pit, a juxtaposition of posts driven right into the ground with others that only rest on the surface. At any subsequent excavation the excavator would find only the former, nor would he find post 6, as he would naturally expect to, since it was not staked in the soil. Why this post rests on a stone is not at all clear; but at least this fact explains why intensive search on prehistoric house-sites for certain posts is often fruitless.

The use to which this type of storage-pit is put is also interesting. In Wallachia potatoes are not grown on a large scale as they are in Hungary, and these pits were used in Wallachia to store various other products such as fruit, green and root vegetables. In this particular storage-pit one box held fruit, another potatoes, a barrel contained compressed coal and the free floor space was filled by gourds, while the walls and a pole (Q), placed across the pit, were hung with paprika and onions.

Here, then, we have proof that the use of storage-pits did not follow the introduction of the potato but that they have come down from olden times. Such pits (Serbian : *trap*) occur in Serbia too, in districts foreign to the cultivation of the potato, where they are used to keep apples and other fruit in straw through the winter.¹⁴

3. PIT-DWELLINGS

The custom of sinking the ground floor of dwellings into the soil may be traced to the very earliest days in the evolution of architecture.¹⁵ In nearly all prehistoric periods and culture-circles dwellings of this

¹⁴ Personal communication from Dr Petrovic, Ethnographic Museum, Belgrade.

¹⁵ Cf. Oelmann, *Haus und Hof im Altertum*, 1927, I, 11.

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kind occur ; they were in use in Germany down to the Early Middle Ages, even to the beginning of modern times.¹⁶ Today such dwellings are rare in Europe, but they are found in Hungary and the Balkans,¹⁷ as well as in Asia¹⁸ and North America¹⁹ and occasionally in Africa.²⁰

A few remains of primitive peasant cultures still exist quite near the Hungarian capital. The pit-dwelling (Hungarian : *foldház*, Rumanian : *borden*) has not entirely died out but is used by Hungarian melon-growers as a field-shelter, especially during the working season. With the rapid advance of civilization these structures are fast disappearing. For instance, four years ago the village of Rákosszaba twenty kilometres east of Budapest, consisted (according to Dr Ebner of the Ethnographic Museum in this city) entirely of pit-dwellings. When Dr Ebner took me to the place in 1933 we saw only the most modern week-end bungalows. After hours of search we at last came across a few pit-dwellings, one of which was as follows (FIG. 8) : the floor of a hut, with an inside measurement of 5.20 m. long (*i.e.* from gable to gable) by 4.00 m. wide, is sunk 70 cm. into the ground. The gable-ends are of crude brick and the sloping roof, which rests on the ground, consists of straw fascines and mud plaster and is supported on inclined poles (st) staked lightly in the soil and bound together in a line with the gable-top. No. 2 in the PLATE shows the framework of such a hut (photo in the Ethnographic Museum, Budapest).

Closely set cross-rafters (q) give the necessary support to the straw fascines tied to them. FIG. 8 shows the gable-end, pierced by a door (r) barely the height of a man, through which the interior is reached by a

¹⁶ *Germania*, 1934, XVIII, 144 ; *Westdeutscher Beobachter*, 1934, no. 436 (26 Sept.).

¹⁷ Hungary : Ebner, *Mag. Ném. Múz. Népr. Taranak Ért.*, 1912, VIII, 165 ; 1929, XXI, 4 ff. Rumania : Ploșor, *Bull. Soc. Reg. Române de Geogr. in București*, 1922, XLI, 124 ff ; Jäneke, *Das rumänische Bauern- und Bojarenhaus*, Bucharest, 1918 ; Jakobi, *Kastell Zugmantel* (Obergerm.-rhätische Limes no. 8), p. 23 ff, figs. 1-3. Albania : Haberland, *Kulturwiss. Beitr. z. Völkerkunde von Montenegro, Albanien und Serbien*. Vienna, 1917, p. 56 ff. Poland : Griesebach, *Das polnische Bauernhaus*, p. 11, fig. 3. France : Viollet-le-Duc, *Dictionnaire de l'architecture française*, VI, p. 293 ff. North-east Europe : Hellwald, *Haus und Hof*, 1888, p. 66 ff ; Bielenstein, *Holzbauten und Holzgeräthe der Letten*, p. 56 ff ; Martha Bielenstein, *Mannus*, 1932, 24, p. 231 ff.

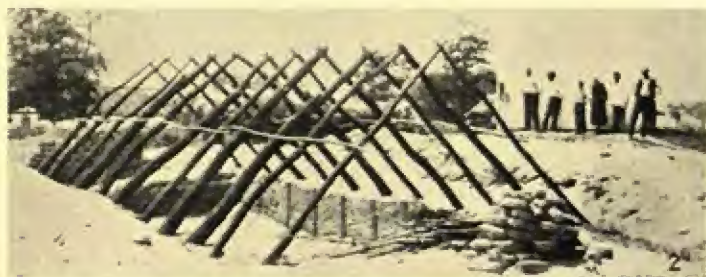
¹⁸ Sirelius, *Finnisch-ugrische Forschungen*, 1907, VII, 106 ff, fig. 74 ; Ratzel, *Völkerkunde*, II, fig. p. 765 ; Buschan, *Illustr. Völkerkunde* (Asien), pp. 298, 350 ; Schurz *Urgeschichte der Kultur*, p. 422.

¹⁹ Sarfert, *Archiv. f. Anthr.*, N.F. VII, p. 130 ff ; *Anthropos*, 1909, VI, 590, fig. 17, 18.

²⁰ Schachtzabel, *Suppl. to vol. II of Internat. Arch. f. Ethn.*, p. 58 (Temben). At Homs in Tripolis I measured in 1932 a rectangular Arab pit-dwelling sunk $\frac{3}{4}$ m. into the ground. It resembled the pit-stable in fig. 10 described pp. 34-35.



1. PIT-DWELLING, RUMANIA, AFTER A FRENCH DRAWING



2. FRAME-WORK OF HUT, RAKOSSZAHA, HUNGARY



3. ROOFING OF PIT-DWELLING



4. SHELTER BUILT IN A HUNGARIAN VINEYARD



5. POTATO STORAGE-PIT, NAGYTARCSA, HUNGARY



6. POTATO STORAGE-PIT, VALTCELE, RUMANIA

PITS AND PIT-DWELLINGS IN SOUTHEAST EUROPE

step-ladder. At one side of the door is a small window, in the centre of the opposite wall a larger one.

A pit-dwelling at Szemet-Gödör near Debreczin (Hungary) shows a different type of dwelling (FIG. 9), with a flat roof. The walls of this cabin, with an inside measurement of only 2 m. by 3.2 m., are of stamped clay; the floor is sunk 0.75 m. in the ground and is reached through the single aperture in the room—the door in the front wall—

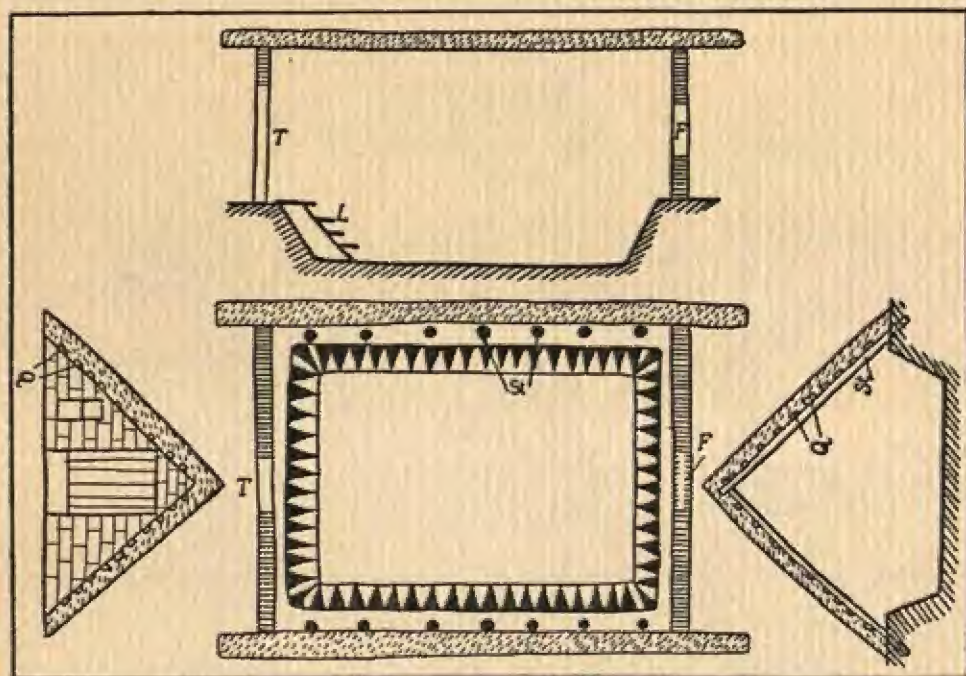


FIG. 8. PIT-DWELLING, RÁKOSSZÁRA

by a short flight of steps cut out of the natural clay. At the back, opposite the door, is a bank of earth 40 cm. high, probably the former bed. The roof, which slopes down gently to the back, consists of straw-covered planks resting on the walls and also supported by the main post (3) carrying a transverse beam (Q). The only other posts in the hut are the two doorposts 1 and 2, and another post 4, which was probably inserted later to prop up a damaged place in the roof. Right in front of the door is an oval rubbish-pit 70 cm. deep.

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This dwelling represents an interesting mixed type coming between the clay-house and the post-house. Post 3 is noticeable as not being centrally placed. One would expect to find a second roof-support, but there is no trace of such. The asymmetrical placing of 3 is probably due to the length of the roofing planks. This plan shows, therefore, how in certain cases posts may be used in a building irrespective of any rule. If the plan represented a prehistoric find the absence of a second support-post would puzzle the excavator.

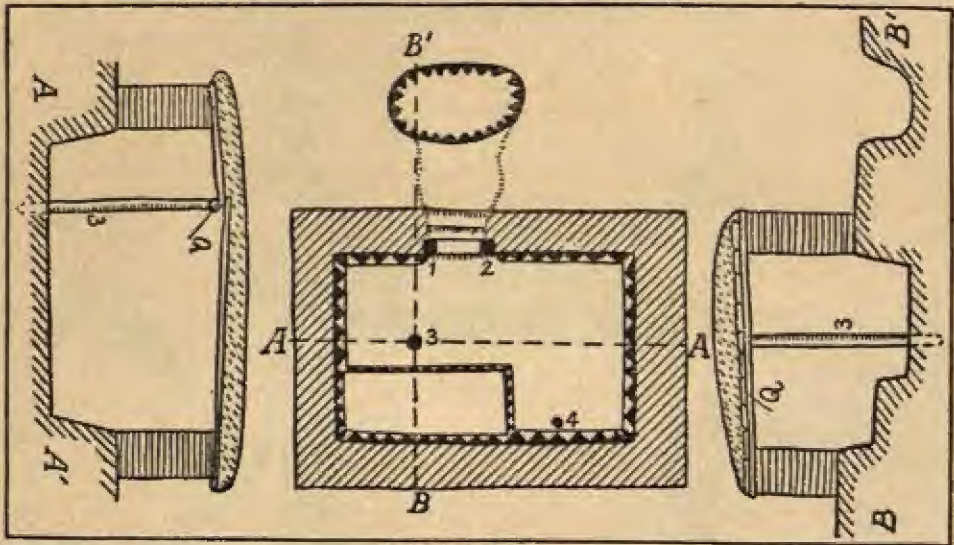


FIG. 9. PIT-DWELLING AT SZEMET-GÖDÖR

4. PIT-STABLES (Hungarian : *földöl*, Rumanian : *burgye*)

In many districts where in domestic architecture proper the sunken floor has been given up, the early form of the pit-dwelling is retained for stables ; indeed, much earlier forms are used for them than for the houses, for occasionally round structures are found so employed.²¹

The plan of the pit-stable at Kótaj, province of Szabolcs, Hungary, in FIG. 10 shows, in contrast to the constructions previously described, a side-entrance leading up from the sunk floor to the surface of the soil. The ground plan of both floor area and walls is quadrilateral with fully rounded corners. At each of the narrow sides of the 4.20 m by 2.40 m.

²¹ Ebner, *op. cit.*, 1929, XXI, 4, fig. 5.

PITS AND PIT-DWELLINGS IN SOUTHEAST EUROPE

pit there are fixed in the soil two strong forked posts (1 and 2) which carry the ridge-beam (F). Towards these incline rafter-posts (st) quite lightly fixed in the soil, which rest upon two beams (L) set in the ground along the long sides of the hut. The entrance, commencing with two steps, then continuing in a gentle slope to the floor, is protected by a low porch springing from the main roof, and is closed at floor level

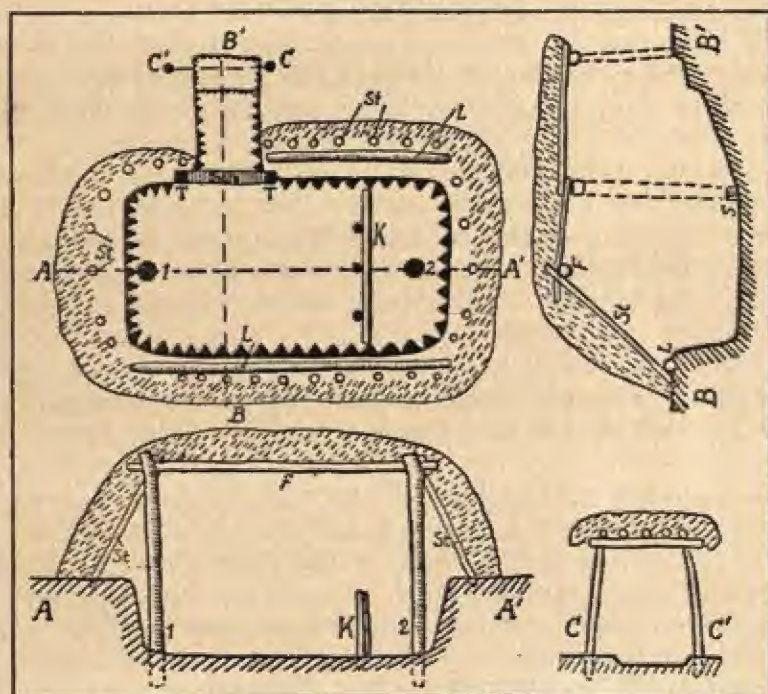


FIG. 10. PIT-STABLE AT KÓTAJ

by a wooden door with two strong doorposts (T) let into a wooden sill (s). The planking (K) erected against three short props separates the cattle-place from the narrow manger in which stands post 2.

The whole roof-surface is warmly protected by a thick padding of straw, earth and dung. This kind of roofing is not confined to stables but is common to all simple pit-dwellings, as seen in no. 3 in the PLATE. Roofs are often used by the inmates as rubbish-heaps, and one may find all kinds of kitchen-refuse upon them (especially potsherds). If such a hut were abandoned or caught fire the roof with its load of rubbish

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would collapse into the pit, and one can readily imagine what a fine prehistoric culture-layer would result. It is quite likely, in fact, that the contents of many of our prehistoric habitation-pits were formed in this way.

Pit-dwellings and stables with side-entrances are far more common than the type first described. The Rumanian *bordeu* is nearly always of the type with a side-entrance. Modern pit-dwellings in Rumania have developed into two-roomed huts and tend to rise nearer to the surface of the ground. One may watch here the whole process of development from the roofed pit-dwelling, through the ridge-roofed hut with a sunk floor and quite low walls, into the roofed house standing on ground level.²²

No. 1 in the PLATE shows a very large Rumanian *bordeu* after a French drawing of the middle of the last century. It is a most advanced construction with low upright walls and a chimney. The title describes it as an inn. Today the pit-dwelling is the normal form of domestic architecture only in quite remote villages, for instance in the Dobrudja.

Occasional pit-dwellings are still found in many parts of Hungary and the Balkans, not only in the villages as permanent homes but also especially in field, forest and garden, used for other purposes. In Hungarian vineyards the vintners build themselves huts of this kind as shelters (no. 4 in the PLATE), and so do the woodcutters in their forests.²³ In this connexion it is interesting to note²⁴ that at Zengövarkony, in the province of Baranya, there exist in the cattle-pastures pit-dwellings 2 m. deep inhabited by communities of some half-dozen shepherds or farmers. Possibly we have here a survival of an archaic social institution (*Männerbunde*) which would repay further research.

In southeast Europe since the War civilization has advanced by leaps and bounds, mercilessly sweeping away, in its victorious march, the few relics of archaic culture still surviving in country life. It is essential, therefore, to preserve faithful records of anything we still possess, a task to which this paper offers a small contribution.

²² Ploșor, 'Bordeiul in Oltenia', *Bull. Soc. Reg. Române de Geogr. in București*, 1922, xli, 124 ff.

²³ Photos in the picture collection of the Ethnographic Museum, Budapest.

²⁴ Personal communication from Dr Ebner of the Ethnographic Museum, Budapest.

Roman Barrows

by G. C. DUNNING and R. F. JESSUP

ROMAN barrows have long been known on the Continent and in this country, but until recent years they have hardly received the attention they deserve. In the forties and fifties of last century a number of Roman barrows suffered from the jaunty zeal of top-hatted antiquaries and their attendant ladies who, as at the opening of the Holborough barrow* in 1844, contrived to pass the time 'at intervals between digging and pic-nicing, in games of various descriptions . . . and in other amusements', but who were sometimes glad of the shelter 'afforded by the hole we had ourselves dug . . . in which we managed so to interlace parasols and umbrellas . . . as to form a tolerably impenetrable roof over our heads'.

A number of Roman barrows have been excavated during the past fifty years and, in particular, the carefully recorded work of the Morant Club in Essex about 1910-15 deserves mention here. Since the War, the study of Roman barrows has been placed on a more adequate basis by two publications: Sir Cyril Fox in *The Archaeology of the Cambridge Region* (Cambridge, 1923), pp. 191-200, has made an intensive study of the barrows in East Anglia, and Mr O. G. S. Crawford has tabulated the characteristic features of Roman barrows in *ANTIQUITY*, 1927, 1, 431-2 and in *Wessex from the Air* (Oxford, 1928), pp. 16-17.

The following essay is based on material derived from these two sources with various additions. We wish also to acknowledge the valuable criticisms and suggestions which we have received from Dr R. E. M. Wheeler, who has kindly allowed us to incorporate his notes and conclusions.

In Britain, Roman barrows are restricted, with a few isolated exceptions, to an area bounded by the Wash, the Severn, and the North Downs. The major examples are in the eastern part of this area, and occur in Kent, Essex, and Hertfordshire; barrows outside these regions are mostly of lesser size and poorer in contents, and presumably represent the marginal spread beyond the main area of influence.

* *Gentleman's Magazine*, December 1852, p. 568.

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They occur either singly or in groups of three or four ; exceptionally the number is as high as six (Stevenage, Hertfordshire), or seven (Bartlow Hills, Essex). They are frequently found by the side of Roman roads or trackways ; sometimes they are aligned in a row (PLATE I and FIG. 1), without any obvious reference to structures, and often they are situated in the vicinity of a Roman house or building. Almost without exception they occupy a geographical position such as was not favoured by prehistoric barrow-builders.

The mounds are of large size, an average diameter being 80 feet—the largest, 144 feet, is one of the Bartlow Hills (PLATE II) in Essex, and the smallest, 32 feet, is Emmanuel Knoll at Godmanchester in Huntingdon. The average height is about 18 feet, though one of the Bartlow Hills reaches the exceptional height of 45 feet. The sides are steep, and the mound conical in shape and occasionally truncated so as to form a level platform at the summit ; a small bank is sometimes placed inside the surrounding ditch, the ditch itself being an imposing feature often of some 20 feet in width, and in one instance, at Chesterton in Huntingdon, there is a causeway across the ditch. There is no definite evidence of exterior stone walling or revetting in any of the barrows in this country.

Usually the central burial is by cremation ; where reliable details are available, the figures are :—cremation, 25, inhumation, 5. It may be placed either above the level of the ground—and in one instance at Youngsbury, Herts, it is 4 feet above ground level—or within a cist in a grave-pit dug into the soil, such cists being built of tiles, mortar and stones, or even wood, and sometimes lined with wooden planks. Remains of wooden burial chambers and the nails or bolts used in their construction are not at all uncommon, and in one burial the cremated remains were placed in a saucer-shaped depression in the ground and simply covered with a wooden board. There is little variation in the manner in which the cremated bones are disposed : they may be placed either in a glass urn or bottle or less frequently in a pottery vessel, and sometimes the glass vessel is in its turn enclosed in a lead canister. It is usual to find accessory vessels of glass and pottery, some of which no doubt contained food and drink. The Bartlow Hills in Essex, which covered some of the most richly furnished burials yet known in Britain, contained in addition an enamelled casket, and fine bronzes of classical design which had evidently been the property of a family of note. Indications of a careful burial-ritual are furnished by traces of aromatic substances in the graves, by the provision of food and drink for the

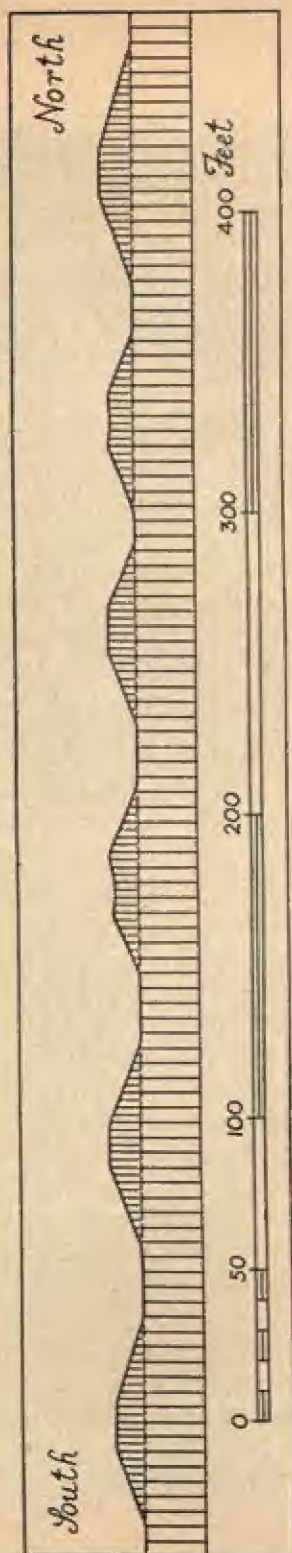
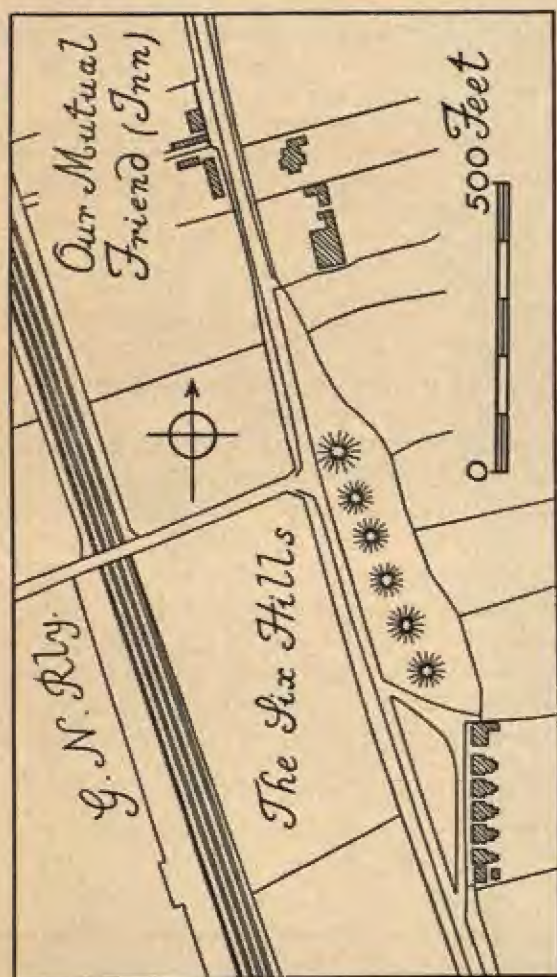


FIG. 1. PLAN AND SECTION OF THE SIX HILLS, STEVENAGE, HERTS

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deceased, and by the frequent presence of lamps with the remains of a charred wick in the nozzle which had evidently been alight when the grave was finally closed. Ritual of a more barbaric nature is indicated

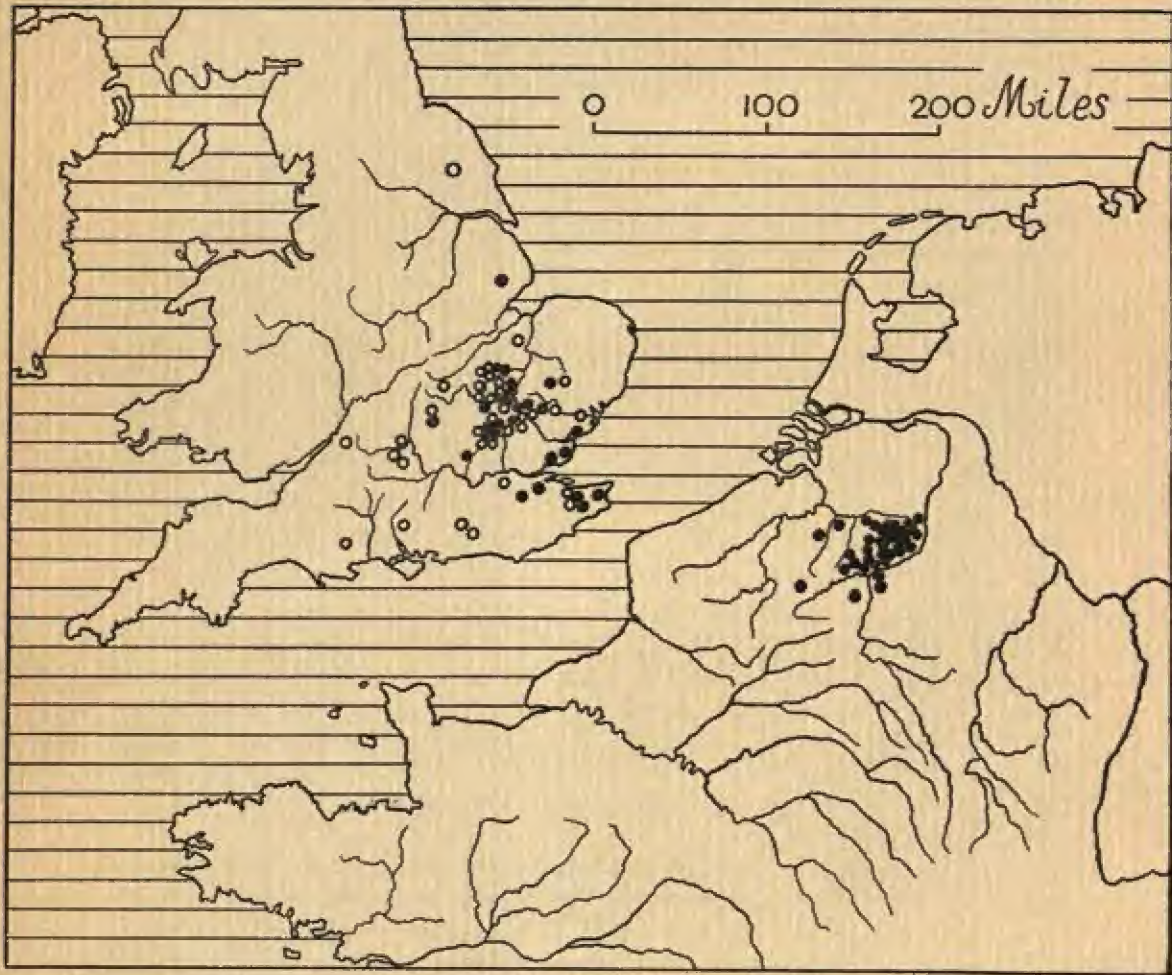


FIG. 2. DISTRIBUTION-MAP OF ROMAN BARROWS

● Barrows of known Roman date. ○ Barrows of presumed Roman date. Groups of Barrows are indicated by a single symbol

by the West Mersea barrow ; over the tomb and on the old land surface for 15–20 feet from the tomb was sprinkled a thin layer of crushed red tile mixed with yellow ochre. In this connexion, too, it may be well to

PLATE I



THE SIX HILLS, STEVENAGE, HERTS

PLATE II



ONE OF THE BARTLOW HILLS, ESSEX, LOOKING NORTHEAST
Ph. O. G. S. Crawford, 28 August 1935

PLATE III



2

1. MODEL OF ENAMELLED CASKET FROM THE BARTLOW HILLS, ESSEX

(By permission of the Trustees of the British Museum)

2. BRONZE JUG FROM BARROW AT TIRLEMONT, BRABANT

(Musée du Comptentement, Bruxelles)

PLATE IV



ROMAN BARROW AT KONINXSHHEIM, BELGIUM
Ph. J. Pelham Maitland

PLATE V



A SECOND ROMAN BARROW AT KONINKSHEIM, BELGIUM
Ph. J. Pelham Matland

PLATE VI



1



2



3



4

1. GOLD-MOUNTED SARDONYX CAMEO OF OCTAVIUS. Barrow at Tirlémont, Brabant
2. GLASS VESSEL IN THE FORM OF A BUNCH OF GRAPES. Barrow at Frésin, Limbourg
3. AMBER CUP CARVED WITH A WINGED MONSTER. Barrow at Cortil-Noirmont, Brabant
4. LIZARD CARVED IN ROCK CRYSTAL. Barrow at Cortil-Noirmont, Brabant

(Musée du Cinquantenaire, Bruxelles)

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lay emphasis on the sacrificial nature of the bronze vessels from the Bartlow Hills, though such funerary deposits are by no means solely confined to barrow-burials. Coins are occasionally found with the burials, and other minor objects include brooches and rings.

It is rare to find secondary burials of later date in Roman barrows, and the only well-attested instance seems to be the Linton Heath barrow in Cambridgeshire, where a Saxon cemetery occupied a large barrow with a primary Roman cremation burial.¹

The few inhumation barrows that are known contain coffins of lead, stone, or wood, and are further characterized by a lack of grave-furniture. An unusual barrow at Rougham in Suffolk is remarkable for the miniature gabled building which housed the burial. An indication of the date of the inhumation burials is given by the absence of grave-goods, which were less regularly deposited after the change in burial-rite from cremation to inhumation.

The date of the cremation barrows can usually be deduced with some precision from the grave-goods, and with the usual reservations, the coins, Samian ware, coarse pottery, and glass may be studied in this connexion.

The coin evidence is brief. The Arms Hills at Bourne in Cambridgeshire yielded a coin of Marcus Aurelius (161-180 A.D.); a second brass of Hadrian (117-138 A.D.) was found in one of the Bartlow Hills, Essex. Analogous evidence is provided by the Samian pottery: that from the Bartlow Hills is representative, ranging from Flavian to Domitian-Trajan and Domitian-Antonine, and for the rest there seems to be nothing later than the middle of the second century. Square glass bottles with broad right-angled handles, and globular glass urns with or without handles, such as occur frequently, are satisfactorily dated by their affinity with Continental material to the end of the first and the beginning of the second centuries. The coarse pottery is seldom adequately described and often now inaccessible, but 'poppy-head' beakers of the type found in the first and second centuries may be recognized. Finally, the Bartlow bronzes, which are of outstanding character and workmanship, can be dated with some assurance, and there is little doubt that the enamelled casket (PLATE III), the trefoil-lipped jugs, and the reed-handled skillets all belong to the second century. A few of the barrows may be as early as the late first century,

¹ The exact site of barrow and cemetery still remains to be determined; will not someone locate it? The published accounts are vague, and the name 'Linton Heath' no longer appears on the Ordnance Maps. O.G.S.C.

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but the majority certainly belong to the first half of the second century and a few may be as late as the end of the century. It seems certain from the evidence available at present, that no Roman barrows of this type were built later than the close of the second century.

It is necessary to qualify the lower limit of date for, as has been noticed already, there are a few instances where the burial is by inhumation. In three cases the records are not as complete and satisfactory as could be wished. A stone coffin was found in a barrow at Lord's Bridge, Barton, Cambridgeshire; it is quoted as hearsay evidence by Camden that coffins had been dug out of one of the Bartlow Hills; and Leland speaks of 'a corse closed yn leade' from the Dungil at Canterbury. More is known, however, of the other two examples of inhumation barrows. At Richborough, Kent, a small barrow with a diameter of about 60 feet was mutilated by the building of the wall of the Saxon Shore fort. It contained a rectangular stone chamber, which had been cut into by the foundation trench of the wall, and the burial, which was by inhumation in a wooden coffin, and accompanied only by a small bronze pin, was in a pit 8 feet below the floor of the chamber. The date of the barrow is not earlier than c. 200 A.D.² The other barrow is at Rougham in Suffolk where, on a concrete platform in the mound, was a small gabled structure which contained a lead coffin.³ In each of these barrows there were no grave-goods.

We may now turn to the Continent and briefly review the evidence of the Belgian barrows, of which a great number have been carefully excavated and described. In addition to the excavation reports, there is an excellent summary with a distribution-map (on which FIG. 2 is based) in *Annales de la Société archéologique de Namur*, 1900, XXIV, 45-56; and M. F. Cumont discusses them in his paper 'Comment la Belgique fut romanisée', p. 88. The barrows are grouped on the north side of the Meuse, mainly between Namur and Maastricht. They occur in largest numbers in the contiguous provinces of Brabant, Limbourg, Namur, and Liège, either singly or in groups of two or three, near Roman buildings or by the side of ancient roads, particularly by the great Roman road from Bavay to Maastricht.⁴

Structurally, the Belgian barrows are practically identical with

² *Richborough Report*, III, 5, 25-29.

³ *Procs. Suffolk Inst. Arch.*, IV, 271.

⁴ Certain barrows to the south in Luxembourg may belong to this group, but the evidence is insufficient to justify their inclusion on the distribution-map. See *Annales Soc. arch. Namur*, 1934, XLI, 21.

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those in this country, and only a brief account based on the published descriptions is necessary here. Usually the barrows are larger than their British analogues, but vary greatly in dimensions; one of the smallest is only about 40 feet in diameter and 4 feet high, whereas the largest reaches about 145 feet in diameter and 40 feet in height. The barrows are steep-sided, of a regular conical shape, sometimes truncated (PLATES IV, v), and seem to have been set out with reference to a central stake fixed in the ground. Generally there is a single burial at or near the centre, and on or below the level of the ground. The burial-pit is commonly lined with thick planks held together with large iron nails; sometimes the pit is lined with large stones, and in a barrow at Middelwinden it was cut down into the solid rock.

In the Belgian barrows the burial is always by cremation and accompanied by rich grave-furniture. Amongst those which have been excavated it is difficult to select any for particular mention, but the following outline of the contents of a few of the more important barrows will serve to indicate the wealthy nature of the burials.

A barrow at Tirlemont, Brabant, contained a cameo head of Octavius in sardonyx mounted in a gold case of fine workmanship, together with bronze jugs and dishes (PLATES III and VI). Another, at Cortil-Noirmont, Brabant, yielded an exceptionally fine glass jug and bronze vessels, a lizard carved in rock crystal, a cup of amber engraved with a winged monster, and a glass vessel decorated in blue and white (PLATE VI). These *objets de luxe* are dated by a coin of Marcus Aurelius (161-180 A.D.) found in the grave. At Herstal a large barrow was furnished with much pottery, a strigil and jugs of bronze, and a bronze lantern, evidently the representative of the iron lamp in Britain, also a bronze casket naïvely ornamented in relief with philosophers and satyrs.

Two barrows at Bois de Buis on the Tongres-Bavay road were excavated by the Société archéologique de Namur in 1899. At the base of the first barrow was a layer of ashes with a bronze brooch and a coin of Hadrian (117-138 A.D.). The grave itself was a wood-lined cist; it contained a cremation burial in a pottery jar, with a silver coin of Nerva (96-98 A.D.), glass urns, coarse pottery, and a good deal of Samian ware most of which belongs to the Hadrian-Antonine period. The second barrow, which had a tomb of stones at the level of the ground, contained cremated bones in a glass bottle, many accessory vessels of glass and pottery, and two unidentifiable coins.

Finally, a barrow excavated in 1921 at Penteville, near Gembloux,

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Namur, has recently been fully published.⁵ The mound, about 105 feet in diameter, was surrounded by a stone retaining-wall with buttresses, and had a central core of loose stones piled over the burial chamber, built of large stone slabs and measuring about 6 feet by 5 feet and 3 feet high inside. The burial of burnt bones was enclosed in a lead canister similar to that in the Mersea barrow, and was surrounded by a rich assortment of bronzes, glass, and pottery. One pot contained bones of a dog, sheep and rabbit, and two boar's tusks. The grave was exceptionally well provided with coins. Inside the canister were coins of Vespasian (69-79 A.D.), Titus (79-81), Trajan (98-117), and Hadrian (117-138); and on the top of the canister was a group of four more coins, of Galba (68-69 A.D.), Trajan, and Hadrian. The burial is thus securely dated to the reign of Hadrian. The inclusion of no less than three coins of the first century is a warning against placing undue value on isolated early coins sometimes found in the barrows.

A study of the objects deposited in the Belgian barrows shows that, as in Britain, the majority, if not indeed all of them, belong to the second century. The close connexion between the British group and the Belgian group is borne out not merely by the character of the mounds themselves but also by that of their furniture. The richly enamelled bronze casket from the Bartlow Hills, together with other enamels of this class found in Britain, finds its parallel in the region of Namur, and is probably an importation from that district; it may be recalled that one of the main centres of the enamel industry is located in the province of Namur.⁶ It is probable also that the large glass jugs and globular urns found so frequently in the British mounds emanated from the factories of the Rhineland and northern Gaul.

How far, if at all, Romano-Gallic barrows may be expected in northeastern France is at present unknown, in the complete absence of information for this region. In Central France a barrow with a primary Roman burial has recently been excavated by Mr N. Lucas Shadwell, and we are indebted to Mrs D. Brogan and Mr C. F. C. Hawkes for bringing it to our notice. This barrow is the Tumulus de La Jugie at Sarrau, near Tulle, Dept. Corrèze. The body had been cremated on the spot, and the burnt bones placed inside a large stone urn, together with a pottery vessel of painted ware and several iron

⁵ *Annales Soc. arch. Namur*, 1934, xli, 3-27.

⁶ *Annales Soc. arch. Namur*, xxiv, 237; xxvi, 173. See also Mlle. Françoise Henry,

* *Emailliers d'Occident*, *Préhistoire*, II, 108 ff.

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objects. On the hot ashes outside the burial were several Samian plates (form 79), dating the burial to 150-200 A.D. This isolated example is about 370 miles from the Belgian group of barrows, and may or may not be significant in the present context. It suggests, however, that field-work in the intervening part of France might add other mounds to form a Western Gallic group. We are indebted to Dr F. A. Schaeffer, of the St. Germain-en-Laye Museum, for kindly making enquiries in France, and eliciting the following reply from Professor A. Grenier, of the University of Strasbourg, who writes: 'in the south of France I do not know of any tumuli of the Roman mausoleum type; neither are there any barrows of the Roman period, either with or without a retaining wall of masonry. In east and north-east Gaul there are many barrows of uncertain age, which were often re-conditioned and used as mottes in the Middle Ages,* and are liable to be mistaken for Roman barrows'.

The problem of the origin of Roman barrows remains to be considered. The British and Gallic barrows form a concise geographical and chronological group which should be capable of explanation. In period they range from the end of the first century A.D. to the end of the second century or perhaps, in Britain, a little later; they appear to have flourished more especially between 100 and 150 A.D. Now neither in this country nor in Gaul is there any effective continuity with the widespread mound-burials of prehistoric times. Barrows of the Belgic period are indeed known, but in Britain two only have as yet been identified and recorded. These are the famous tumulus at Lexden, near Colchester,⁷ with its wealth of imported classical bronzes, and a small barrow at Hurstbourne Tarrant, near Andover.⁸ These richly furnished burials must belong to Belgic nobles—the Lexden tumulus may even be the grave of Cunobelin himself—and they find their natural inspiration in the chieftains' burial-mounds of Normandy,⁹ in the very region whence the Belgic immigrants of Britain crossed the Channel. Both the British mounds are well dated to the early or mid first century A.D., and so are separated by about half a century from the Romano-British group; moreover, the evidence at present available does not suggest that this gap is likely to be bridged by future discoveries.

* An analogous instance of a motte being thrown up over a prehistoric barrow is provided by a mound at Rug Park, Merioneth. See *Antiquaries Journal*, 1922, II, 64.

⁷ *Archaeologia*, 1926-7, LXXVI, 241.

⁸ *Archaeological Journal*, 1930, LXXXVII, 304-9.

⁹ *Ibid.* LXXXVII, 214-17.

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Thus there is no reason for associating the introduction of barrow-building into Roman Britain with the main pre-Roman immigrations of Belgic culture. Moreover, the Belgian group of barrows lies well to the northeast of the Continental pedestal-urn and bead-rim pottery areas, and must be considered independently of them,¹⁰ as an essentially new phenomenon at the time of the Roman development of Gallia Belgica.

We therefore turn to classical sources, and are at once reminded of the mausolea of the Roman Emperors. Mound-burial in a more or less elaborate and sophisticated form was a recognized feature of the Roman tradition, and consisted essentially of a mound of earth with a facing of stone or brick, and internal radiating walls to counteract the thrust of the mass of earth. For example, the mausoleum of Augustus, built in 28 B.C., was described by Strabo¹¹ as a mountain of earth planted with evergreen trees, raised on a lofty base of white marble 280 feet in diameter, and on the summit was a bronze statue of the Emperor.¹²

Monuments based on the Italian model are occasionally found in the Roman provinces north of the Alps, and in varying degree embody all the features of their prototype. The best known is a group in the region of Trier.¹³ These vary from 70 to 154 feet in diameter, and have a series of relieving arches within the outer retaining wall; in addition, one tomb has radiating walls, and two of the monuments have a central structure, but the evidence for burials is scanty.

In France the only monument of this kind adequately recorded is the structure known as 'La Gironette', outside the town-wall of Autun.¹⁴ It was 82 feet in diameter, with internal relieving arches and eight walls radiating from the central core. The only comparable structure in England is the 'cart-wheel' mausoleum at West Mersea, Essex¹⁵; this is 65 feet in diameter, with marginal buttresses and six walls radiating from a central ring-wall.

¹⁰ Compare FIG. 2 with distribution-maps in *Arch. Journ.*, LXXXVII, 189, FIG. 7, and p. 283, FIG. 25.

¹¹ *Geography*, v, chap. III, 8.

¹² A detailed account of the mausoleum of Augustus is in *Papers of the British School at Rome*, 1927, x, 23-35. The mausoleum of Hadrian is fully described in *Journ. Roman Studies*, 1925, xv, 75-103.

¹³ H. Koethe in *Germania*, 1935, xix, 20.

¹⁴ H. de Fontenay, *Autun et ses Monuments* (Autun, 1889), p. 209.

¹⁵ *RCHM. Essex*, III, 229. A. W. Clapham, 'Roman mausolea of the cart-wheel type', *Archaeological Journal*, 1922, LXXIX, 93.

ROMAN BARROWS

Roman barrows seem to stand in logical succession to these provincial mausolea, and to represent a further stage of transformation from the ostentatious Italian tombs. The structural link between the mausolea and barrows is provided by four of the Belgian barrows, those at Cortil-Noirmont, Glimes, Hottomont,¹⁶ and Penteville,¹⁷ which had a circular retaining-wall inside the mound; in addition, the wall in the Penteville barrow had buttresses. The structure of the burial chamber, rarely of masonry but more frequently of cheaper brick, and the straight-sided pseudo-pyramidal form of the mound, are faint reflections of the dignity and splendour of the classical mausoleum.

In seeking for an explanation of the mass of Belgian barrows along the Meuse valley, it is well to bear in mind that in this region and more particularly to the north in Campine, there are numerous groups of low barrows, called *tombelles*.¹⁸ The majority of these belong to the late Bronze Age and Hallstatt period, and a few are of early La Tène date. But even here there appears to be no possibility of direct continuity with the Romano-Belgic mounds. All that is here implied is that the presence in this region of numerous barrows of a long-past age may have fostered the emphasis laid on the earthen mound; the general *idea* of mound-burial in Roman Gaul being a re-introduction from Roman sources, whilst the local *form* of this adopted custom owed something to the influence of the existing Bronze Age and Hallstatt burial-mounds with which the provincials were familiar.

We are thus, it seems, confronted with yet another manifestation of the individuality which Gallia Comata developed under the influence of the Romans. A familiar example of this individuality is the Romano-Gallic or Romano-Celtic temple-plan,¹⁹ whilst a new but equally distinctive example is provided by the amphitheatrical type of theatre—now known as the 'cockpit' type—such as that recently excavated at Verulamium by Miss Kathleen Kenyon, and identified by her as a Romano-Gaulish form.²⁰ How far domestic architecture may have followed equivalent provincial lines cannot yet be said, in the absence of adequate information from France. But even in minor cultural

¹⁶ E. Rahir, *Vingt-cinq années de recherches* (Bruxelles, 1928), pp. 218, 222, 243.

¹⁷ *Annales Soc. arch. Namur*, 1934, xli, 23-24.

¹⁸ Baron de Lœe, *La Belgique Ancienne*, II, Les âges du métal, especially pp. 76-77, 174-5, 183-94, 199-200.

¹⁹ R. E. M. Wheeler in *Antiquaries Journal*, 1928, VIII, 316 ff; H. Koethe in *Bericht der Römisch-Germanischen Kommission*, 1933, p. 10 ff.

²⁰ *Archaeologia*, 1934, LXXXIV, 213 ff.

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details we find a similar provincial individuality ; for instance, in the distribution of 'hippo-sandals', which are common in Britain and northern Gaul²¹ but hardly occur south of Maçon, and in certain brooch-forms, notably the so-called Langton Down type.²²

We suggest, then, that the purely local development of mound-burial in the northeastern corner of Gallia Comata is another product of Roman civilization *in partibus* during the same curiously formative period of North-Gaulish culture. Just as the Gaulish temple-builders and theatre-designers adopted Roman ideas and transmuted them, so, in a particular Gaulish area, some individual tomb-builder paraphrased a Roman custom and developed it into a local tradition.

The reason for the spread of this custom to Britain is to be sought in the strong links of a commercial character which existed between this country and the Rhineland—a connexion that is indeed strikingly demonstrated by the contents of the burial-mounds themselves. These imposing mounds may well be the resting-places of wealthy merchants from Belgic Gaul, who participated in the intensive commercial development of Britain during the first half of the second century.

ROMAN BARROWS IN BRITAIN

The following lists provide a key to the distribution-map (p. 40). It is hoped that they will serve as a guide in directing future field-work, and in selecting barrows for excavation.

C.=Cremation ; I.=Inhumation ; *RCHM.*=Royal Commission on Historical Monuments ; *VCH.*=Victoria County History ; *A.C.R.*=C. Fox, *Archaeology of the Cambridge Region* (Cambridge, 1923) ; *Wessex*=O. G. S. Crawford and A. Keiller, *Wessex from the Air* (Oxford, 1928).

1. BARROWS OF KNOWN ROMAN DATE, WITH PRIMARY BURIALS OF THIS PERIOD.

The site, the type of burial, and notes and references are given. Where possible, the present location of the 'finds' is indicated within square brackets.

BUCKINGHAMSHIRE

Thornborough. (2). Stone floor with fragments of pottery and glass, a gold ornament and ring, and iron weapons. [Audley End]. One opened in 1840. *RCHM. North Bucks*, 298.

CAMBRIDGESHIRE

Barton, Deadman's Hill. Iron nails and fragments. Roman pottery. Destroyed. *C.A.S. Proc.* xiv, 53 ; *A.C.R.* 196.

²¹ *Revue des Musées*, 1928, 1929, and 1930 ; R. E. M. Wheeler, *London in Roman Times* (London Museum, 1930), p. 149, and *Verulamium Report*, p. 220.

²² *Lydney Report*, p. 71.

ROMAN BARROWS

- Barton, Lord's Bridge (Hey Hill). I. Stone coffin. Fragments of Roman pottery outside coffin. Near Roman road. *C.A.S. Proc.* xii, 273; *A.C.R.* 194.
- Bourne, Arms Hills. (1). C. Barrow with ditch, burial on ground level. Bronzes, pottery, coin of Marcus Aurelius (161-180 A.D.). (2). C. Two barrows superimposed. Inner barrow as (1), the other being post-Roman. Excavated 1911. *C.A.S. Proc.* xv, 166; *A.C.R.* 194-5.
- Hildersham. ? C. Below ground level. Fragments of Roman pottery, and also in clay puddling. Saucer-shaped hollow lined with puddled clay, the burial being on this floor. cf. Broxbournebury, Herts. Excavated 1852. *A.C.R.* 195-6.
- Linton, Linton Heath. C. 'Roman vase'. Large barrow with primary Roman cremation and secondary Saxon inhumations. There were four other barrows nearby. *Arch. Journ.*, xi, 95; *A.C.R.* 196-7, 260.

ESSEX

Ashdon. The Bartlow Hills. PLATE II. Two parallel alignments running nearly N-S, and here numbered separately in that direction.

(A) Western group. 1, 2, and 3 are destroyed. 3, 4, and 5 were excavated in 1832.

(1, 2). Said to have contained skeletons in stone coffins.

(3). C. Wooden chest. Glass jugs, iron lamp, bronze jug and patella, wooden coffer.

(4). C. Wooden chest. Glass jugs, iron lamp, wooden coffer, Samian (late 1st cent.) and coarse pottery.

(5). C. Brick cist. Glass jug with second brass of Hadrian (117-138 A.D.) and gold ring, glass bottle containing thick liquid, metal-bound wooden tankard, basket-work, and wooden coffer.

(B) Eastern group. Excavated 1835-40.

(1). Previously opened, probably in 1815. Bronze bowl and strigil, iron lamp. [Saffron Walden]. *Essex Arch. Soc. Trans.* N.S. vii, 349.

(2). C. Wooden chest. Glass jug, bronze jug and basin, iron lamp, glass beaker, Samian (early 2nd cent.) and 'poppy-head' beakers.

(3). C. Wooden chest. Glass jug, 3 glass jugs with liquids, iron folding chair with bronze fittings, bronze lamp, strigils, decorated bronze jugs and patella, and enamelled casket, pottery. Outside the chest a large globular amphora with burnt bones.

(4). C. Wooden chest. Glass jug, decorated bronze jug and patella, iron lamp, glass, Samian (early 2nd cent.) and coarse pottery. Chicken bones in Samian dish, and remains of sponge near burial.

All the grave-furniture, except that from B (1), was destroyed by a fire at Audley End in 1847. Remains of the enamelled casket in B (3) and model of it (pl. iii) in British Museum (*Guide to Roman Britain*, p. 96 and pl. ix). For excavations 1832 and 1835-40, see *Arch.* xxv, 1; xxvi, 300; xxviii, 1; xxix, 1; *J.B.A.A.* xix, 250; see also *Antiquity*, 1, 346, 431; *RCHM. Essex*, 1, xxiv, 4-5, with plan and sections; *RCHM. Hunts*, xxxiii; *A.C.R.* 191-4, a very good summary.

Foulness, Little Shelford. C. Seven or eight pots including early 2nd century Samian. Destroyed. *J.B.A.A.* iv, 74; *RCHM. Essex*, 1, 47.

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- Langley. C. Broken bricks, glass, and Samian. *Essex Arch. Soc. Trans.* 1, 194; *A.C.R.* 196.
- Mersea Island. C. Cist of tiles, boulders, and mortar. Glass urn in lead casket. Over the tomb and on the old land surface was a thin layer of crushed red tile mixed with yellow ochre. [Colchester]. *Essex Arch. Soc. Trans.* N.S. XIII, 116; *Antiquity*, 1, 347, 431, plate 1; *Wessex*, 16; *RCHM. Essex*, III, 229.

HERTFORDSHIRE

- Easnye Wood, near Ware. C. ? Wood-lined grave. Burnt bones under charred slab of wood. No objects. Excavated 1899. *P.S.A.L.* XVIII, 8.
- Harpenden. C. Stone cist. Square glass bottle and pottery. [British Museum]. Excavated 1827. *VCH. Herts*, IV, 153.
- Hoddesdon, Broxbournebury. C. Built over a saucer-shaped depression, in which a large fire had been lit. Part of quern of Andernach lava found in depression, and Roman pottery in mound. Excavated 1901. *P.S.A.L.* XIX, 7. *E. Herts. Arch. Soc. Trans.*, II, 6; *A.C.R.* 196.
- Standon, Youngsbury. C. Wood-lined cist. Burnt bones in grey urn, globular glass bottle, square glass bottle with cremated bones, iron nails. Two barrows on what may be a Roman road. Excavated 1889. *Arch.* LI, 287; *VCH. Herts*, IV, 164; *Antiquity*, 1, 431; *RCHM. Essex*, I, XXIV.
- Stevenage, The Six Hills. PLATE I and FIG. 1. 'Wood and iron' from one excavated in 1741. Alignment N-S on supposed Roman road. *E. Herts. Arch. Soc. Trans.* III, 178. *Arch.* LIII, 260 with full references; *Antiquity*, 1, 347, 431; *Wessex*, 16; *A.C.R.* 197.
- Watford. 'Roman interment', probably surrounded by tiles, found beneath a barrow in 1860. Also 'several gold things, copper coins, and a lot of pickle-jars with burnt bones in them'. Cussans, *Hist. Herts.*, III, *Cashio Hundred* (1881), 181; *VCH. Herts.* IV, 165.

HUNTINGDONSHIRE

- Godmanchester, Emmanuel Knoll. By side of Roman road. C. Wooden chest with iron nails. Burnt bones in urn. Destroyed 1914. *Camb. and Hunts. Arch. Soc. Trans.* IV, 14; *A.C.R.* 195; *RCHM. Hunts.* XXXIII, 106; *VCH. Hunts.* IV, 254 and pl. II, 4.

KENT

- Bishopsbourne, Gorsley Wood. 3 barrows in a row. C. Stone cists. Near burials, 3 or 4 broken urns, pieces of fine glass, glass pin, bits of iron with traces of gold, and pieces of bronze ornaments. In largest barrow, pavement of large Roman tiles bordered with flints slanted down from outside towards the centre of the mound. Excavated 1882 or 1883. *Arch. Cant.* XV, 311; *P.S.A.L.* IX, 163; *Arch. Journ.* 279; Hasted, *Hist. Kent*, VII, 266; *VCH. Kent*, III, 146-7.
- Canterbury. Group of 4 barrows known formerly as the Dungil Hills. 1 and 2 stood just within the southern part of the town-wall, 3 and 4 were just outside the walls. 2, 3, and 4 are destroyed.
- (1). The Dane John, within the southern angle of the town-wall. In 1790 it was mutilated beyond recognition and the surrounding ditch filled in. An illustration in Nichols' *Bibliotheca Topographica Britannica*, XLV, pl. XIII, 2, shows the original conical form of the barrow as it appeared in 1787.

ROMAN BARROWS

- (2). Little Dungil, about 300 yds. northeast of the Dane John.
- (3). Near Canterbury East station, destroyed in 1860.
- (4). About 100 yds. southeast of the Dane John. Destroyed in making a school at Rhodaus Town. C. ? Brick or tile cist. Pottery, oyster-shells, and animal bones. *Soc. Antiq. MS Minutes*, xxxiii, 15 Jan. 1789.

In one of the mounds, apparently in (2) or (3), Leland records an inhumation in a lead coffin, presumably Roman. Leland says 'many yeres sins men soute for treasure at a place cauled the Dungen . . . and thar yn digging thei fownd a Corse closed yn leade. Gostling, *A Walk in and about the City of Canterbury* (1825), p. 9; *Arch. Journ.* xxxii, 370; LXXXVI, 272-5, pls. I and XI. *VCH. Kent*, iii, 77.

Plaxtol, Thompson's Farm. I. Skeleton with no objects at centre of barrow, and at the circumference deposits of pottery including early 2nd century Samian, glass vessels, 1st cent. brooches, and remains of bronze bound box. [Maidstone]. Information from Mr N. C. Cook. *Arch. Cant.* ii, 6-7; *VCH. Kent*, iii, 163.

Richborough. I. Wood coffin in grave, partly under west wall of Saxon Shore fort. Bronze pin in grave. About 8 ft. above the burial were remains of masonry chamber about 13 ft. by 15 ft. Stone packing round the tomb, and remains of low mound. Burial not earlier than about 200 A.D. *Richborough Report*, iii, 5, 25-29. *VCH. Kent*, iii, 34.

Snodland, Holborough. C. Burial on layer of fine earth laid on platform cut in the chalk. Iron nails, broken pottery, and part of brooch. Excavated in 1844, now much mutilated. *Arch. Journ.* i, 262; *Gent. Mag.*, 1852, p. 568; *VCH. Kent*, iii, 168.

LINCOLNSHIRE

Revesby. Two large mounds, in one a clay cist with ? burnt bones. *Lincs. Notes and Queries*, iii, no. 21, 145. *Arch. Journ.* xci, 177. Information from Mr C. W. Phillips.

SUFFOLK

Rougham. Four barrows in line near a Roman building. Excavated 1843-4.

(1). C. Tile cist, square glass jug, iron lamp.

(2). C. Tile cist below ground level. Two-handled glass urn, glass phial, illegible coin, Samian and jug of early 2nd cent., coarse pottery, iron lamp with wick, wooden casket. [Bury St. Edmunds].

(3). C. On ground level. Two urns and fragments of Samian.

(4). Eastlow Hill. I. Body wrapped in skins in lead coffin. Burial inside a small chamber of flint rubble and tiles, with ridged tile roof, standing on a concrete platform. No objects. (1) and (3) destroyed. *Suffolk Inst. Arch. Proc.* iv, 257-81; *VCH. Suffolk*, i, 315-6; *A.C.R.* 193-4.

2. BARROWS OF PRESUMED ROMAN DATE, AS INDICATED BY THEIR FORM OR GEOGRAPHICAL POSITION. MOUNDS WHICH HAVE BEEN EXCAVATED, BUT THE DATE OR PURPOSE OF WHICH IS NOT PROVED, ARE ALSO INCLUDED.

BEDFORDSHIRE

Biggleswade. Now destroyed; formerly by side of Biggleswade-Sandy Roman road. *A.C.R.* 197-8.

ANTIQUITY

Clifton. C. Bowl-shaped urn. [Cambridge]. *A.C.R.* 197.

Roxton, The Round Hill. Wadmore, *Earthworks of Beds.*, p. 259-60; *VCH. Beds*, 1, 297.

BERKSHIRE

Uffington, Cowleaze Farm. Jet ornament, shale ring, bronze pin. [British Museum]. Destroyed. Peake, *Arch. Berks*, 106.

Kingston Lisle. An isolated barrow near Fawler. *Antiquity*, 1, 347, 479; *Wessex*, 17. For the significance of the place-name 'Fawler' see *Antiquity*, 1, 479.

CAMBRIDGESHIRE

Impington, How House. Roman coins according to Lysons. By side of Roman road. *A.C.R.* 196, points out that the situation is suggestive, but that coin-evidence is poor.

Comberton, Fen Drayton, Shudy Camps, Swavesey, Trumpington, Wilburton. *A.C.R.* 198.

DORSET

Shapwick, Badbury Rings. Three barrows in a row alongside the Roman road from Dorchester to Old Sarum. The bank flanking the road is interrupted by the barrows. *Antiquity*, 1, 346; *Wessex*, p. 59 and pl. iv.

ESSEX

Hockley, Plumberrow Mount. No burial found. Near centre, remains of post 9-12 in. diameter, set 2½ ft. in floor. Coin of Domitian (81-96 A.D.) and Roman pottery on old ground level below mound. Higher up, Saxon pottery, perhaps from secondary burials. Excavated 1914. *Essex Arch. Soc. Trans.* N.S. XIII, 224; *RCHM. Essex*, iv, 68.

Lexden, Lexden Mount. No burial, but mound disturbed previous to excavation in 1910. Roman pottery on old ground level and in mound. *Essex Arch. Soc. Trans.* N.S. XII, 186. *RCHM. Essex*, III, 74.

Newport, Quendon Park, Sturmer. *A.C.R.* 198; *RCHM. Essex*, passim.

GLOUCESTERSHIRE

The Hyde Tumulus, near Stroud, C. At centre, chamber of stones containing burnt bones, ashes, and bronze brooch 'of Roman type'. Excavated 1848. *Proc. Cotterwold N.F.C.*, v, 284; Witts, *Arch. Handbook of Glos.* 97-8.

These references we owe to Mr L. V. Grinsell.

HAMPSHIRE

Winchester, east of Magdalen Hill. Three unopened barrows, the shape of which suggests a Roman date. Information from Mr L. V. Grinsell.

HERTFORDSHIRE

Anstey, Brent Pelham, Knebworth, Little Hormead. *A.C.R.* 198.

Widford. *VCH. Herts*, iv, 169.

HUNTINGDONSHIRE

Abbott's Ripton, Chesterton, Great and Little Stukeley, Hail Weston, Tetworth. *RCHM. Hunts*, 106; *VCH. Hunts*, 1, 223, 254, etc.; *A.C.R.* 198, and information from Miss M. V. Taylor, and Mr C. W. Phillips.

ROMAN BARROWS

KENT

Boughton-under-Blean, Nash Court park. Two barrows in N-S line, near Watling Street.

Chartham Downs. Small Roman glass bottle [British Museum] with brooch and coins of Lower Empire. The only reference to the barrow is in the British Museum Registers; it may have been a Saxon barrow, but a Roman barrow here is possible. This barrow has sometimes been described as at Chatham.

VCH. Kent, III, 149.

Kingston, Kingston Down. Three large barrows aligned on Watling Street. They were 'turned over' by Faussett, who found no relics, but judging by their position they were probably Roman. *Invent. Sepulchrale*, 84, 86.

Shepherdswell, Three Barrow Down. Three barrows, two very large, in a line. Faussett, *Invent. Sepulchrale*, 121, 127.

West Wickham. C. Pottery. Apparently a barrow, now destroyed. *Arch. Journ.* LVIII, 103; *VCH. Kent*, III, 174.

NORTHAMPTONSHIRE

Daventry, Borough Hill. C. Roman pottery. The published accounts do not differentiate between prehistoric, Roman, and Saxon barrows, all of which existed here. The Roman pottery is not all likely to have come from Saxon barrows, though some of it may have done. Baker, *Hist. County Northampton*, I, 346, with other references. W. Edgar, *Borough Hill (Daventry) and its history*, (1923), p. 37 and plates 12-14 for pottery.

OXFORDSHIRE

Crawley. Oblong mound containing many skeletons with heads to west. Bronze and iron buckles, sherds of Roman pottery. ? Roman or Saxon. Excavated 1857 and 1864. References in *Arch.* LXXI, 239; *VCH. Oxford*, II, 347-8.

SUFFOLK

Stonham. Two barrows, one in churchyard. *VCH. Suffolk*, I, 316-7. Information from Miss M. V. Taylor.

SUSSEX

Bignor, barrow near Stane Street, Bury, West Firle. *Sussex Arch. Coll.* LXXV, 227, 235.

YORKSHIRE

Hovingham. Tall conical barrow alongside the Roman road from Malton to Aldborough, and near a Roman villa. M. Kitson Clark, *Gazetteer of Roman Remains in E. Yorks*, p. 17. Information from Mr I. A. Richmond.

Easter Island, Polynesia

by HENRI LAVACHERY

Royal Museums of Art and History, Brussels

[NOTE.—M. Henri Lavachery, the writer of this article, was the Belgian member of the Franco-Belgian Expedition which visited Easter Island, and remained there from 29 July 1934 to 3 January 1935. It was initiated by Prof. Paul Rivet, of the Éthnographical Museum, Paris, and was actually two expeditions—a French one consisting of M. Watelin (who died before reaching Easter Island), and M. A. Métraux (of Swiss nationality), and the Belgian expedition represented by M. Lavachery. A joint subsidy was made by the Belgian Government and the National Belgian Fund for Scientific Research. The expedition was transported to the island by a French naval vessel and taken off it by the Belgian training-ship 'Mercator'. The visit of the expedition and the formation of its collections were both greatly facilitated by the Government of Chile, to which Easter Island belongs, who gave the most generous instructions to their representative on the island. After the death of M. Watelin, M. Lavachery assumed responsibility for the archaeological work, while M. Métraux had charge of the ethnographical and linguistic investigations. A report on the results of the expedition was published in the *Bulletin des Musées Royaux, Bruxelles*, May-June 1935, no. 3, 50-63; July-August, no. 4, 81-90.]

FEW places in the world have given rise to more fantastic speculation than this volcanic island, 70 square miles in area, lying in the Pacific Ocean, lat. 27° 10' S., long. 109° 20' W. Actually the so-called 'mysteries of Easter Island', or rather the explanations which have been offered, are not the work of trained men of science. It is natural that the huge statues, standing erect as they do in a naked landscape against a background of black and yellow, should have appealed to the poetical imagination. But those who wish to face with candour the problems presented by certain parts of the world

EASTER ISLAND, POLYNESIA

may well be annoyed when the poets' lyrical love of mystery becomes the starting-point of speculation. The best students of Easter Island have always told us that it was Polynesian and could only be explained by Polynesia.¹ The evidence that we have now obtained is merely an addition to what was already a formidable pile. Nevertheless we expect that before long others will come forward again with tales of a lost continent of Lemuria, submerged beneath the waters of the Pacific; and that Easter Island is one of its peaks, peopled with Lemurian idols!

For geologists are in complete agreement upon this point. If a Pacific continent existed, it was long before the advent of man and in a part of the southern ocean far removed from that in which the gaunt cliffs of Easter Island confront the unceasing assault of the waves. It is surrounded by vast ocean depths which occur in the expanse of 2500 miles of ocean separating the island from the American coast on the east and from the nearest land 1750 miles to the west, namely the Gambier Islands. Easter Island is a volcanic island, and a lofty one, like the Marquesas and Hawaii, in contrast with atolls and coral islands which are low-lying. If one could denude such islands of their dense coverlet of mango-scrub, bread-fruit trees, bamboo and cocoa-palms, drain the springs, and cover them with a growth of yellow herbage—then such an islet as Hivaoa of the Marquesas will come to resemble Easter Island.

It is the bareness of Easter Island, the result of its colder climate and exposure to the four winds of heaven, which has given birth to these misconceptions. The idea of Polynesia does not fall in with a barren rocky landscape, monotonous pampa or a pale sun incessantly obscured by rain-clouds.

These talkative Pascuans,² like naughty laughing children, whose language and appearance is Polynesian without a shadow of doubt, can no longer be denied those ancestors who carved the notorious statues, engraved the puzzling symbols of Rongo-rongo and set up round the island's coast all those innumerable monuments (actually 184).

At what date was Easter Island first settled? There are excellent reasons for believing that it was between the 12th and 13th centuries of the Christian era. We have certain traditions relating to the peopling of Hawaii and New Zealand. The Polynesians established themselves there at the end of their migrations between the 11th and 13th centuries.

¹ Mrs Scoresby Routledge, *Mystery of Easter Island*, 1919.

² We may well adopt the English equivalent to avoid the clumsy 'Easter Islanders'.
Translator.

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Considering the remoteness of Easter Island, it is reasonable to suppose that it was peopled about the same time. The approximate date of the colonization of this island is, however, based upon the list of the Pascuan kings. This list has been narrated to several observers; the most complete is that of Thompson³ who obtained it from an informant who was a survivor of the pagan period. One may assume a length of twelve years for the reigns of each of the 57 kings in the list. Maurata, the last Pascuan who was certainly regarded as a king, died in 1864, as a result of the Peruvian slave-raids. Calculation gives us exactly the beginning of the 13th century.

But how can one account for the achievement of such a long journey? The Polynesians possessed vessels that could face the open sea; they were capable of taking sometimes more than a hundred oarsmen and passengers. Further, they put to sea in squadrons. The canoes kept just as far apart as was possible without losing sight of each other. At night they came together. By thus distributing themselves over the surface of the sea they were able to discover even the smallest islands. Some canoes were lost, but there were enough to ensure that some should reach their objective. Navigation was by the stars, according to the direction of ocean currents and as the wind allowed. But in the Pacific there are regular winds in each season.

Whence came the Pascuans? Every indication points to the Gambier Islands. The similarity of the Mangarevian and Pascuan languages is a valuable clue. Then the Gambier Islands contain ancient monuments which call to mind the *ahus* more than do any of the other *marae* of Polynesia. Father Honoré Laval, in an unpublished account⁴ giving valuable information about the ancient culture of the Gambier Islands, speaks of statues resembling those of Easter Island. Finally, the Gambier Islands are those which are nearest to it on the west. The Polynesians probably found Easter Island devoid of monuments and uninhabited; but this statement lacks proof.

The present Pascuans would appear, then, to be the direct descendants of the architects and sculptors of the ancient monuments. Proof of this is to be found in a comparison of these monuments with those of other Polynesian islands. One must also cite the traditions current

³ A paymaster of the American navy, and the author of a short archaeological account which, considering that it was based merely upon a visit of eight days, is remarkably informative and full.

⁴ This will shortly be published, through the agency of my Swiss colleague Alfred Métraux, by the Bishop Museum, Honolulu.

PLATE I



STATUE OF HOA HAKA NANA IA, EASTER ISLAND, BROUGHT HOME BY
H.M.S. TOPAZ IN 1888
Pl. O. G. S. Crawford

PLATE II



PACADE FACING SEA, AHU OF ANAKENA, EASTER ISLAND
The huge blocks are worked only at the joints

PLATE III



FALLEN FEMALE STATUE, ON AHU OF ANAKENA, EASTER ISLAND

PLATE IV



VOLCANO OF RANO RARAKU, EASTER ISLAND, SHOWING STATUES BELOW QUARRY

PLATE V



STATUES AT THE FOOT OF THE VOLCANO, RANO RARAKU, EASTER ISLAND

PLATE VI



STATUE SHOWING TATTOO-MARK ON CHEEK, RANO RARAKU, EASTER ISLAND

PLATE VII



ROCK CARVINGS AT ORONGO, EASTER ISLAND

On the left is debris of the hut destroyed in 1886 to obtain painted tablets now at Washington.

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at the time of the first contact with white men, in which the names of sculptors and of their direct descendants were mentioned.

But there are also certain obvious facts of a commonsense kind. Many of the traditions relate to the construction of *ahus* at a very recent date. Now the statues were merely accessory to these burials—the images of ancestors set up there. If the monument is of recent date, that which adorns it will naturally be so too. Then again, the evidence of the first foreigners to arrive is in agreement; the *ahus* were in living use at the end of the 18th century and were seen by Gonzales and La Perouse. We collected traditions reporting that ceremonies were held there still during the 19th century.

There is no evidence of the existence of *two* cultures. Up to quite modern times, when the *ahus* were being made and used, the rites and ceremonies centring round Motunui and Orongo⁵ and the great god Maké Maké continued to take place. The last bird-man was drawn, according to Thompson, in 1880. It may be recalled that the house of the bird-man, the tomb reserved for him, was inside the *tapu* surrounding the quarry whence came the statues and where the oldest still stand. This is presumptive evidence in favour of a close connexion between the cult of Orongo and that of ancestors. Perhaps sufficient importance has not been attached to the fact that Orongo contains breccia sculptures from Rano Raraku,⁶ and that it is from Orongo that there came the most perfect example of the typical Easter Island statue, that at the British Museum (PLATE I).

Take on the other hand all those manifestations of the plastic skill of the Pascuans—the sculptures on stone and wood, the designs of the rock-carvings and tablets, of the rock-paintings and tattoo-marks. The technique varies with the raw material, but the uniformity of style is indisputable.

The abrupt end, as it seems, of the activities of Rano Raraku has been invoked both by the adherents of the theory of an age-old lost civilization and by those who favour the idea of a dual Pascuan culture. But the arrest of activity can be explained by simple, almost contemporary, causes. The exploitation of the volcano was controlled by the clan of the Tupahotus, and, as everywhere in Polynesia, by a group of specialists. It required only a war to partially destroy the specialists—

⁵ An islet and village situated to the west of Easter Island.

⁶ A volcano in the eastern part of Easter Island. On its slopes is the quarry where the statues were hewn.

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and tradition tells of many wars at the beginning of the 19th century. An epidemic imported by the whalers might equally be responsible ; today each vessel that arrives brings some malady to the Pascuans. Finally, the Peruvian raids (1859-61) are traditionally reported to have given the coup-de-grace to the class of *maoris* (experts).

The fact that in 1886 the Pascuans had already forgotten how and why their activities had been brought to a close, as well as other facts about their culture—such as how the statues were transported, and the meaning of the tablets—is no evidence of the antiquity of these facts, nor does it justify an attribution to another culture. For we have seen these same Pascuans refusing to admit that the stone adzes could have been used to work wood ; while it is certain that before 1860 iron must have been very rare in the island, and that their immediate forebears must necessarily have worked wood with the aforesaid adzes. On the other hand they freely admit that adzes and stone chisels were used to work the two kinds of andesite of which the statues, bols and house-stones were made. By a curious inversion the Pascuan regards wood as being harder and more difficult to work than stone, so easy to fashion is the stone of this island. 'This argument' can be used against those who put forward the alleged difficulty of carving igneous rock as a reason for attributing them to a race more skilled, more strong and gifted with better implements than the Polynesians.

But to return to the first Polynesian colonists. Very probably the fauna and flora of Easter Island were extremely restricted. But following a custom common in all their migrations, they would have taken with them plants, seeds of the most useful vegetables, rats and chickens. They colonized the island, and their first settlements were at Anakena on the north coast and at Arahanga on the south. They set about conserving rainwater, for Easter Island has no springs. At the same time they learnt how to protect the crops against the continual winds. They were familiar with certain crafts which they hold in common with all Polynesians—the making of cloth from mulberry bark (*tapa*) and the working of wood and stone. The latter craft differs only from that found in the other Polynesian islands in respect of the size of the monuments. The abundance of easily carved stone was the sole predetermining cause of the Pascuans erecting on their island the largest statues found in the islands of Oceania.

⁷ Unfortunately, however, the mystery-mongers are not as a rule open to reason. Mystery is their religion.—Translator.

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The technical skill of the former inhabitants is seen also in the manufacture of implements and weapons of obsidian, and of fish-hooks of stone and bone. These last were made with human bone, for man was the only mammal available with bones large enough. The Pascuan writing on wood shows their skill and taste. There have been found a large number of rock-paintings and engravings, the former magical, the latter merely trial-pieces.

The Pascuan house, when it is above ground, shows many technical analogies with the Hawaiian house, which, like it, is roofed with tufts of grass set on a framework of boughs. Whenever possible the Pascuans settled themselves in artificial caves or holes in the ground which provided a less precarious shelter in war and against thieves. The fowl-house was built on the same principles.

The Pascuans were tattooed, and on feast-days they painted their bodies with appropriate emblems.

Ten family-groups or clans divided up the island between them. The king belonged to the clan of Miru. His place of residence changed, and his rôle was indeterminate. Many taboos, notably in the matter of food, isolated him from Pascuan life. He did not engage in the wars which often broke out between the clans of the west and north and those of the east (Kotuu against Hotu Iti). He presided over the experts in *rongorongo*, the repository of ancient traditions, genealogies, etc. They used tablets (Kohau rongo rongo) engraved with signs as an aid to memory. The signs of *rongorongo* were the object of organized teaching.

The Pascuans practised a form of double inhumation. The body was exposed on the *ahu* until the flesh dried up or turned to dust. The bones were then placed in the burial-chambers. Sometimes the skull was preserved separately. There was a general fear of the spirits of the dead. Commemorative feasts were held in front of the tombs, where chickens were exchanged for a ritual purpose. The statues at the foot of Rano Raraku represent the dead. Several of them have tattoo-marks which were still used during the historical period. Later, the images of the dead also were placed on the *ahus*.

The Pascuans had a large number of gods, the chief of whom was Maké Maké. The same name appeared in other Polynesian mythologies. It would seem to be connected with the source of that which supplied the material needs of the Pascuans—cultivation and fishing. It was thus connected with the Marquesan Tiki whose mask it resembled in almost every detail. Maké Maké is the creator of birds. One of

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the less obscure features of his cult is the indication, by means of birds, of a man^{*} who probably represents the god, and who each spring gives place to another. Ritual feasts at which human flesh was eaten were a part of this cult, as well as also initiation ceremonies at puberty.

The end of the old culture was hastened by the arrival of Europeans, who revealed a new world to the Pascuans, a world totally different from their own. From that time onwards they lost without any effort both peace and the joy of life. Their restless spirit drove them to undertake the most savage warfare, which decimated them, ruined their culture and overthrew its monuments. Works of art were given up, traditions were lost, so that even the memory of their existence has perished. The whalers and slavers completed the task of destruction already well advanced. After being christianized the Pascuans became ashamed of most of their past history, and essayed, not without success, to remove all traces of it from memory.

^{*} Tangata Manu—bird man. He was the first to get possession of the first egg laid by the bird *Manutara* (breast) in the island of Motunui (spring equinox).

Anglo-Saxon Vine-scroll Ornament

by ERNST KITZINGER

THE principal questions concerning the origin and chronology of Anglo-Saxon sculpture are still awaiting their final settlement. As there is so little external evidence for dating the monuments, it seems probable that only such a method as that so successfully adopted by Mlle. Henry in her book on Irish sculpture* can offer a useful approach to the problems they raise. This method implies a separate analysis of each decorative element, research as to its origin, and a comparison wherever possible of its various evolutionary stages with better dated examples in other arts or other countries. The arrangement of the different motives in series can be collated by the evidence offered when they occur on the same monument, and by this means at least approximate dates for single monuments can be obtained.

A complete knowledge of the material is the first condition for applying this method to English sculpture. In the Department of British and Medieval Antiquities of the British Museum, photographs are being collected on a very large scale under the direction of Mr T. D. Kendrick, in order to bring together as complete material as possible for a history of Anglo-Saxon sculpture, and especially of the Crosses which constitute the bulk of the monuments. The questions raised by this material can hardly be solved in any other way than that described above.†

In my attempt to study the principal decorative motives which have to be analysed separately I have chosen the vine-scroll as the most favourable one with which to begin. It is not only the most frequent but perhaps also the most important ornament, as it is the principal decoration of the monuments usually considered to be the earliest.

* Reviewed *ANTIQUITY*, 1934, VIII, 125-6.

† I am greatly indebted to Mr T. D. Kendrick, who so kindly and patiently acquainted me with the material and the problems of Anglo-Saxon sculpture. He and Miss Elizabeth Senior have also helped me in writing this paper in English and have made most useful suggestions. Also Dr Fritz Saxl has kindly given me an opportunity to discuss the subject with him and has thus rendered great help.

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Moreover there exists already a very good account of the English vine-pattern in Dr Brøndsted's *Early English Ornament*.

Omitting discussion of the much-debated problem of the origin of the vine-scroll itself, I shall first consider a special question which is of urgent importance for the history of the vine-ornament in England, and the first one a student of late antique art is likely to ask—When and how did this ornament, so frequent in Roman and Early Christian art, find its way to England? A general solution of this problem has already been offered by Brøndsted, Conway and many others, and these notes are only intended as a further small contribution.

We do not know how the vine-scroll came to play such an important rôle in English sculpture. Perhaps the symbolic significance of the vine¹ had a special appeal, but this would be difficult to prove, and would not help us to explain why on Irish and Scottish sculptures it is as rare as it is frequent on English carvings. Perhaps the reasons for its popularity are aesthetic rather than symbolical; for the vine-scroll is not the only feature which distinguishes the English carvings from those of Scotland and Ireland. This classical motive is, in fact, only part of the general classical character peculiar to the English work. Thus, in contrast to the characteristic of a continuous minute and carpet-like surface decoration, especially frequent in Irish sculpture, the English monuments usually show a much stronger relation between architectural form and ornament, in proportions as well as in arrangement. This is particularly evident, for instance, in the Bewcastle cross, where the shaft is organically divided into a system of smaller and larger frames in which each ornament has its definite place in its own panel. Even where there is no such division in panels the arrangement of the ornament takes up the structure of the cross, following strictly its main lines, and it is set out clearly and regularly in a very definite plastic form, never giving the impression of mere surface decoration, but of tactile plant-, band- and animal-forms, attached to or carved into the body of the cross.

The scroll-ornament, therefore, seems to be but one indication of a strong classical tradition which is alive in the whole of this English sculpture. It is not certain whether this classical feeling in England is a survival from Roman times, or was re-introduced or at least revived during the Christian period; but for our special motive, the vine-scroll, it should be possible to decide this question, as there is no

¹ John, xv, 1 ff.

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evidence for its survival in England after the decline of Roman provincial art, while its subsequent appearance can easily be explained as a part of the great wave of Mediterranean influence known to have affected this country in the 7th and 8th centuries.

It is hardly necessary to enumerate the frequent records of travel to Italy undertaken by English ecclesiastics of that time or to remark upon the importance of these travels in the history of early English art. That the vine-scroll should be as much a result of the copying and modifying of Italian models as was the portrait of St. Matthew in the Lindisfarne Gospels, which is copied from the Esra portrait in the Codex Amiatinus, would be a likely hypothesis.

On the other hand there are also records of artists coming to England from Gaul; and there is a third possibility of direct connexion with the Hellenistic orient, whence came men like Theodore of Tarsus. Of course, all the western countries have taken elements of patterns from such oriental models as the ivory throne of Maximian in Ravenna or the Mshatta façade. Our real problem is whether the English sculptors took their motives of decoration direct from such oriental sources, or whether they received them transformed by later usage and perhaps indirectly through a western country like Italy or Gaul. Brøndsted considers this question solved by tracing the history of the vine-scroll back to Eastern models. A. W. Clapham, however, in his book on *English Romanesque Architecture before the Conquest* (p. 64), has drawn attention to a chronological difficulty which arises if the English vine-scroll is derived directly from early Eastern prototypes. Brøndsted assumes that Eastern, or rather oriental-hellenistic, vine-pattern was spreading over the whole Mediterranean between the 4th and the 6th centuries. Thus, even supposing that the vine-scroll did not exist in the West before that time, in the 6th century it was known in all Mediterranean countries, and the question remains to be solved which part of this large territory has produced the immediate models for the English ornaments which do not appear until a later period.

Therefore it might be useful to look, however hastily, through the material surviving in the various Mediterranean countries and to see what kind of scroll-patterns they have produced, and whether these ornaments have any connexion with the English examples. We should perhaps ask first of all which of the English examples clearly represent the foreign prototypes, for some of them do seem to be rather near to certain late antique types, whereas others can be better interpreted as local copies. Since, however, it is not always easy to decide

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whether a pattern represents a relatively unaltered foreign type or a locally evolved variety of it, our investigation will perhaps be more methodical if we bear the whole of the English material in mind whilst we are searching abroad. Some of the English examples will then automatically be singled out as the nearest to certain kinds of foreign ornaments and suggest an immediate connexion with them.

In Gaul, as may be concluded from the abundance of examples in Esperandieu's *Recueil*, scroll-ornament was very common in Roman times. In the Early Christian period the southern French sarcophagi,² which are of 5th and 6th century date, and objects closely related to them, such as the columns of La Daurade,³ continue to show examples. These scrolls do not reveal many resemblances to the English patterns. The most frequent English types, simple, undulating plants, with or without animals in the single volutes, seem to be extremely rare. There is more resemblance to those English examples which show a systematized and symmetrical arrangement, such as the panels on the Bewcastle cross or the face of the Aberlady shaft⁴; but, in general, the scrolls in Gaul are usually of a rather thin and abstract character and are very often enriched by capricious and artificial minor motives.⁵

Italy, too, seems to be somewhat unproductive of close parallels. Although here again scroll-ornament had been used since late antique times only one group of monuments comes into serious consideration for our purpose, the Ravennate 5th and 6th century sculpture. Scroll-motives are of frequent occurrence there.⁶ The best comparison with our material—and especially such a scroll as occurs on the Ruthwell cross or Jedburgh slab (PLATE II B)—is offered by the sarcophagus of Archbishop Theodore in S. Apollinare in Classe (cf. PLATE I A). We have here the same fat scroll, forming very much emphasized circles which contain birds, animals, vine-leaves and bunches of grapes. In English ornament the real vine-leaf does not occur, and branches and animals usually intertwine in a much more complicated way. Nevertheless the resemblance in this case is relatively close. Many of the other Ravennate plant-patterns are much less organic, and show a

² E. Le Blant, *Les Sarcophages chrétiens de la Gaule*, 1886.

³ *Bulletin of the Metropolitan Museum of Art, New York*, 1922, p. 41.

⁴ A. W. Clapham, *English Romanesque Architecture before the Conquest*, 1930, pl. 14.

⁵ Cf., for example, Le Blant, pls. XXIV, XXXVIII, XLVI.

⁶ H. Dütschke, *Ravennatische Studien*, 1909, figs. 4b, 29c, 35, 36d; A. Haseloff, *Pre-romanesque Sculpture in Italy*, 1930, pl. 36.

PLATE I



A, SARCOPHAGUS (6TH CENT.) OF ARCHBISHOP THEODORE IN S. APOLLINARE IN CLASSE, NEAR RAVENNA



B, PANEL FROM THE SARCOPHAGUS OF THEODOTA (720), MUSEO CIVICO, PAVIA (after Haseloff)

PLATE II



A. COPTIC LIMESTONE RELIEF (5TH-6TH CENT.), METROPOLITAN MUSEUM, NEW YORK
(from Duthuit 'La sculpture Copte')



B. CARVED SLAB, JEDBURGH
Pl. W. F. Taylor

PLATE III



B, DETAIL OF NEWCASTLE CROSS (NORTH SIDE), FROM A CAST
By courtesy of the Victoria and Albert Museum



A, COPTIC IVORY (5TH-6TH CENT.), CAIRO MUSEUM
(from Strzykowski, "Koptische Kunst")

PLATE IV



A, COPTIC WOOD PANEL (6TH-7TH CENT.)
By courtesy of the Kaiser Friedrich Museum, Berlin



B, PANEL OF BEWCASTLE CROSS (SOUTH SIDE)
Ph. W. F. Taylor

PLATE V



A, DETAIL OF MOSAIC (A.D. 692) IN THE DOME OF
THE ROCKS, JERUSALEM
(from Creswell, 'Early Muslim Architecture')



B, CROSS-SHAFT, ABERLADY, HADDINGTON
Pk. W. F. Taylor

PLATE VI (A)



A, DETAIL OF CAROLINGIAN IVORY, MUSEO PROFANO OF THE VATICAN, ROME
(from Goldschmidt, 'Elfenbeinskulpturen I')

PLATE VI (B)



B, DETAIL OF EASBY CROSS
By courtesy of the Victoria and Albert Museum



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tendency towards a plain geometrical arrangement of single leaves or bunches of grapes in a framework of circles which have no longer the character of growing plants. Rigid frozen plant-forms and stiff heraldic animals become quite general by the second half of the 6th century and are only one of the many symptoms of decay and sterility which can be observed in the whole of Ravennate art of this and the 7th century.⁷ The scrolls in the so-called Lombard art which can be followed in a series of dated monuments throughout the 8th century are from the first more like chains of thin metal rings, neatly designed in very low relief and each filled with only one or two flattened leaves or bunches of grapes* (PLATE I B). Nothing of this kind occurs in English art. These 7th and 8th century examples would, however, be the earliest which could be directly connected with the English ones : no date earlier than 670 has ever been seriously suggested for the earliest English monuments.

The only Italian examples, therefore, which show a close relationship with the English scrolls are too early in date for an immediate connexion to be postulated. Moreover they occur in just that period and place where there was the closest connexion between Italy and the East. The early Ravennate vine-scrolls certainly derive directly from oriental models,⁸ and as none of the Italian transformations just observed seem of great importance for England, the similarity of the early 6th century scrolls to the English ones might be due only to the fact that similar oriental models were used later in English art. It is perhaps more promising, therefore, to direct our search towards Byzantium, Syria, and Egypt where these patterns might have had a longer survival.

In Byzantium itself, it is true, hardly anything has been preserved. Some students believe Maximian's ivory throne to represent the official art of the emperor's court ; but as long as there is no final proof of this assumption we only can regard it as an outstanding and almost isolated specimen of the best Hellenistic tradition in oriental art. It is here that we find in its best form the rich natural scroll, crowded with beasts, that is apparently the archetype both of Ravennate sarcophagi-decoration on the one hand and English scroll-ornament

⁷ Cf. Toesca, *Storia dell'Arte Italiana*, 1, 1927, p. 260.

⁸ Toesca, *ibid.* fig. 213 ; Haseloff, *ibid.* pl. 44 ; Serra, *L'Arte nelle Marche*, 1929 p. 34 ; Haseloff, pl. 53. A late example of a more classical scroll (7th-8th century) is to be found on the wooden door of S. Alessandro in Parma, if the date given by Brøndsted (p. 29) is right.

⁹ Cf. Haseloff, *ibid.* p. 34.

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of the Ruthwell type on the other. But this genuine Hellenistic tradition does not seem to have furnished the *immediate* models of the English vine-ornament. Not only does the scroll on the throne differ too much from the English examples in the leaves, blossoms, and animals to be itself the original pattern of the Ruthwell and Bewcastle scrolls, but there are also considerable differences in style and in formal principles. In the English examples the scroll itself and its undulating movement plays a much more important part; it is emphasized by an almost entire omission of leaves and other details, which are allowed very often to conceal the main stem in the oriental example. The uninterrupted growth of the stem is made still more evident by the fatness of its form and it is then complicated by the winding and interlacing of the stem with itself and with the animals and birds. In contrast to this the scroll on Maximian's throne, when examined in detail, shows itself to be very simple in its arrangement; its leaves, bunches of grapes, and animals being merely juxtaposed in every bay, and the baroque impression it gives is entirely due to the effect of light and shadow on the rather crowded surface.

But in certain groups of oriental monuments this illusory effect gives way to a more plastic and elaborate style, without, however, becoming so rigid and plain as in later Ravennate art. I do not insist on great local differences of vine-scroll decoration in individual eastern provinces; but it does happen that most of the material has been preserved in Coptic Egypt, and the Coptic series of sculptures may be used to demonstrate that some of the essential features of English plant-ornament existed in oriental art in general.

I should like to show these similarities by a few comparisons (cf. PLATES II-IV), though I do not pretend to be able to produce the immediate models for our vine-scroll types. In Coptic art we find quite different kinds of plants from those used in England, either long fan-shaped fringed leaves or real vine-leaves alternating with bunches of grapes. In most parts they are very regular and often schematic in their arrangement, and the relief is deeply undercut; but they can often, nevertheless, be compared with the English versions as examples of that middle stage of development lying between the naturalism of the chair of Maximian and the rigidity of the later Italian scrolls. The fat round, almost inflated, plant and animal forms on the New York limestone relief (already cited by Conway in connexion with the English scrolls¹⁰) seem to have a more than accidental similarity to a scroll like

¹⁰ *Burlington Mag.*, 1912, p. 195.

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that on the Jedburgh slab, which is only a cruder version of the Bewcastle and Ruthwell animal-scroll (PLATE II A-B). A complicated intertwining of branches which we found typical for English scroll patterns is also to a certain extent a characteristic of the Coptic slab; it is however much more developed in the English example, where every form is inspired by its own life and encounters other just as active forms. A real game of hide-and-seek is here being played between plant- and animal-forms, illustrating a—perhaps especially English—predilection for dramatic interplay. A hint of it, however, can indeed be found in Coptic art, and it is this activity of the plants to which I wish to draw attention by the comparison of a Bewcastle panel with a Coptic ivory on PLATE III A-B. The third comparison (PLATE IV A-B) shows that in addition to the freely growing plant, the regular panel-arrangement of the sides of the Bewcastle cross also occurs in Coptic art.

From these comparisons it may be concluded that there are at least some points of stylistic relation between Coptic and English scroll-patterns, whereas very few were offered by the Gaulish and Italian examples. We have, therefore, some reason to believe that the English got their models *directly* from the East.

There is one argument to be brought forward against this view. Most of the Coptic sculptures and especially those which still betray a strong Hellenistic tradition are usually assigned to the 6th century, like the Ravenna example,¹¹ and the work seems to have rapidly decayed after this, the few monuments of the later 7th and 8th centuries showing the art at its end. Thus even if the earliest possible date for a work like the Bewcastle cross is adopted, there still remains a gap between Coptic and English art. There is, however, in the East a group of non-Coptic monuments which belong to the decisive period, the later part of the 7th and the early 8th century. We do not know whether these are the products of an Asiatic or of a Syrian tradition, for there is hardly anything earlier with which they may be compared, but these monuments do at least show that there was a current of Hellenistic art still alive in the East about 700. Here I have in mind the mosaics of the Dome of the Rocks in Jerusalem (691 A.D.)¹² and of the Great Mosque in Damascus (705 A.D.)¹³ To the same group of monuments belongs, so it is now almost generally believed, the Mshatta façade,

¹¹ Cf. the dates given by G. Duthuit, *L'Art Copte*, 1931.

¹² Cf. M. v. Berchem in K. A. C. Creswell, *Early Muslim Architecture*, 1, 1932, p. 152. The scrolls are part of the mosaics which bear the dated inscription.

¹³ Creswell, *ibid.* p. 230 and pl. 36 ff.

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which has often been compared with English ornament though it is perhaps of less value for our present purpose as it is slightly different in style.¹⁴ The mosaics of Jerusalem offer the closest comparison for they show a type which is very general in English art and is not so common abroad as might be expected, namely, the simple plain scroll with a grape or a leaf in every volute and usually a couple of leaves in the remaining spandrels. We can see from PLATE V how similar these Syrian and English scrolls are, both as regards their type and also their even and wide distribution over the surface.

Thus it seems that oriental art not only offers the greatest possibility of stylistic comparison with the English ornament, but also approaches it most nearly in point of date. Only in oriental art does classical, naturalistic scroll-decoration seem to have survived long enough to be directly connected with our English material, and it seems likely that, without the intervention of a western country, it was the source of some of the most important English patterns. In other words, if we consider the chronological point which, as we mentioned above, was neglected by Brøndsted, we still come to a result similar to his. Although the question of the original creation of the vine-scroll cannot be regarded as identical with that of the special models for the English scrolls (as the English examples do not appear until a time when this ornament had certainly spread over the whole Mediterranean) we still find the East to be the most important source. The answer is the same although the question was different. And there is another difference: whereas in Brøndsted's discussion of the origin of the vine-scroll Eastern influence stands for conventionalization and stylization, in our study of the survival of the vine-scroll in the 6th, 7th and early 8th centuries the East is important as preserving hellenistic features which are fading out in the West very quickly. That is a most striking characteristic also in certain other groups of contemporary monuments in the Eastern Mediterranean.

This does not, of course, give us sufficient evidence for the exact dating of those English examples which have been compared with their oriental sources. The models could have been imported in the middle of the 7th century just as easily as in the early 8th. But it is rather unlikely that they were brought to England much later than that, for it is difficult to find any possible later prototypes even in the oriental hellenistic world.

¹⁴ Cf. Creswell, *ibid.* p. 390 ff.

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Comparison with oriental art has provided us with a starting point, though a vague one, for the history of the English scroll pattern. The question arises, however, whether it really suffices to find one such source for the English vine-scroll. Can the whole variety of English patterns be derived from one hypothetical late 7th or 8th century influence? Can all the vine-scrolls that are near to late antique originals be regarded as contemporary, and can the whole English material be arranged in one chronological sequence on the assumption of an increasing deviation from the foreign models? Brøndsted's system of development, certainly right in its general line, perhaps over-simplifies things a little in taking this hypothesis for granted. Some of the oriental models may not have come to England before the earliest ones had either ceased to interest, or had been entirely transformed by local artists.

Nevertheless, even if we suppose that this oriental influence was confined to a very limited space of time and that it was the main source of English vine-ornament, some patterns might have come from a western late antique source unknown to us, or they may also belong to a later renaissance. We have, therefore, first of all to group with our oriental models all the English sculptures which can be definitely explained as copies or varieties of these types; in doing this it will become apparent that some decorations do not fit in at all with them, but seem to have independent models. These models, may, of course, have come from similar sources, and our failure to find adequate comparisons for them may only be due to the fact that so little oriental material has been preserved. But they might also derive from a different source, and if they too suffered the usual fate when imitated and transformed, then the system of development may become more complicated, though perhaps more closely related to historical reality.

A systematic grouping of the whole English material cannot be undertaken here and I only wish to add in conclusion a few remarks on this task, which should follow in the methodical study of the English scroll-ornament.

The examples which we were able to relate to oriental-hellenistic patterns actually do represent leading types which occur again and again on English monuments; the animal-scroll of Ruthwell and Bewcastle, the panels of Bewcastle (one of which has a 'double scroll'), and the simple scroll of Aberlady, have evidently been copied many times. It is not necessary, for instance, to assume a different source for the animal-scroll of the Rothbury or the Otley cross-shaft, or for the

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single scroll of Spital. But we have to remember that there are in addition a few other scroll-ornaments of entirely different design: the well-known little Hexham slab for instance must have a model of its own, about which we do not know anything, unless we compare it with certain Mediterranean pavement-mosaics.¹⁵

The real difficulty lies in those cases where it is doubtful whether a new model was used or an old one modified. For we do not know how much to allow for the freedom and originality of the English artists.

What we know about typical English features should, however, be of some help. The scroll on Acca's cross in Durham, for instance, which seems so obviously to represent a type of its own, is perhaps a peculiarly English variety of the Bewcastle double-scroll already compared with it by Lethaby. In no other country can there be found anything so complicated and sophisticated. The Bewcastle panel shows the same elements, and perhaps they are only transformed and exaggerated here in accordance with that taste for complication which we found in English ornaments before, the branches being treated like wires and twisted and interlaced in a highly artificial way.

Thus a scroll which at a first glance seems to represent a type of its own might be found to derive from a well-known model. On the other hand a scroll-ornament which represents roughly the Ruthwell or the Aberlady, or any other 'oriental' type, may still have come from a different source. We put those few examples at the beginning not as headings under which the English material could now be distributed, but as those English ornaments which show the closest stylistic relation with late antique tradition. We cannot assume that a vine-scroll is a direct local imitation of our one source, unless the stylistic tradition has been followed or transformed logically. In most cases this is very difficult to decide, and I shall give only one example which seems clear to me, instead of many doubtful ones which I have in mind. On the Easby cross the Ruthwell animal-scroll appears again. Yet it is very difficult to imagine the Easby scroll to be a copy or a local modification of this type, as it has a peculiar, thin, and elaborate style. This style seems to me most closely related to that of Carolingian ivories (cf. PLATE VI, A-B). Easby should, in my opinion, be excluded from the relative chronology starting with the 'oriental' 7th and 8th century scrolls, and it seems to have its definite place in Carolingian art.

¹⁵ Cf. Brøndsted, *ibid.* fig. 20 (Hexham slab) with fig. 4 (Jerusalem, mosaic) or with Peirce and Tyler, *L'Art byzantin*, II, 1934, pl. 115 ff. (Sabratha).

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All such breaks in stylistic development should be pointed out, and possibly also the foreign influence which might have caused them and from which a new sequence of English copies and varieties may have originated. Perhaps in this way we shall find a few more dates for English vine-ornament, so that we might construct a chronological system on a larger basis. For it is certain that a full history of Anglo-Saxon sculpture will not be possible until the developments of all the types of decoration are studied and collated with each other.

The Cyclopean Walls at Tarragona*

by JULIO MARTINEZ SANTA-OLALLA

Professor of Prehistory and Archaeology at the University of Madrid

IF the description of the 6th century Massalian Periplus, preserved in the *Ora Maritima* of Rufus Festus Avienus,¹ does not refer to Tarragona, as almost all scholars agree with Professor Bosch Gimpera² in believing, then one can only say that to no other city of the Spanish coast can that account of its walls be applied with greater appropriateness.

Seldom does it happen, as at Tarragona, that the ancient walls retain intact throughout the ages the embodiment of history amid the modern life of the city, and nowhere else with such charm and grandeur as that of Cesse with its true Iberian atmosphere. Usually the huge blocks of the primitive cyclopean wall are overlaid with reconstructions and refacings of the Roman, Visigothic and Medieval periods and of the modern Spanish fortifications.

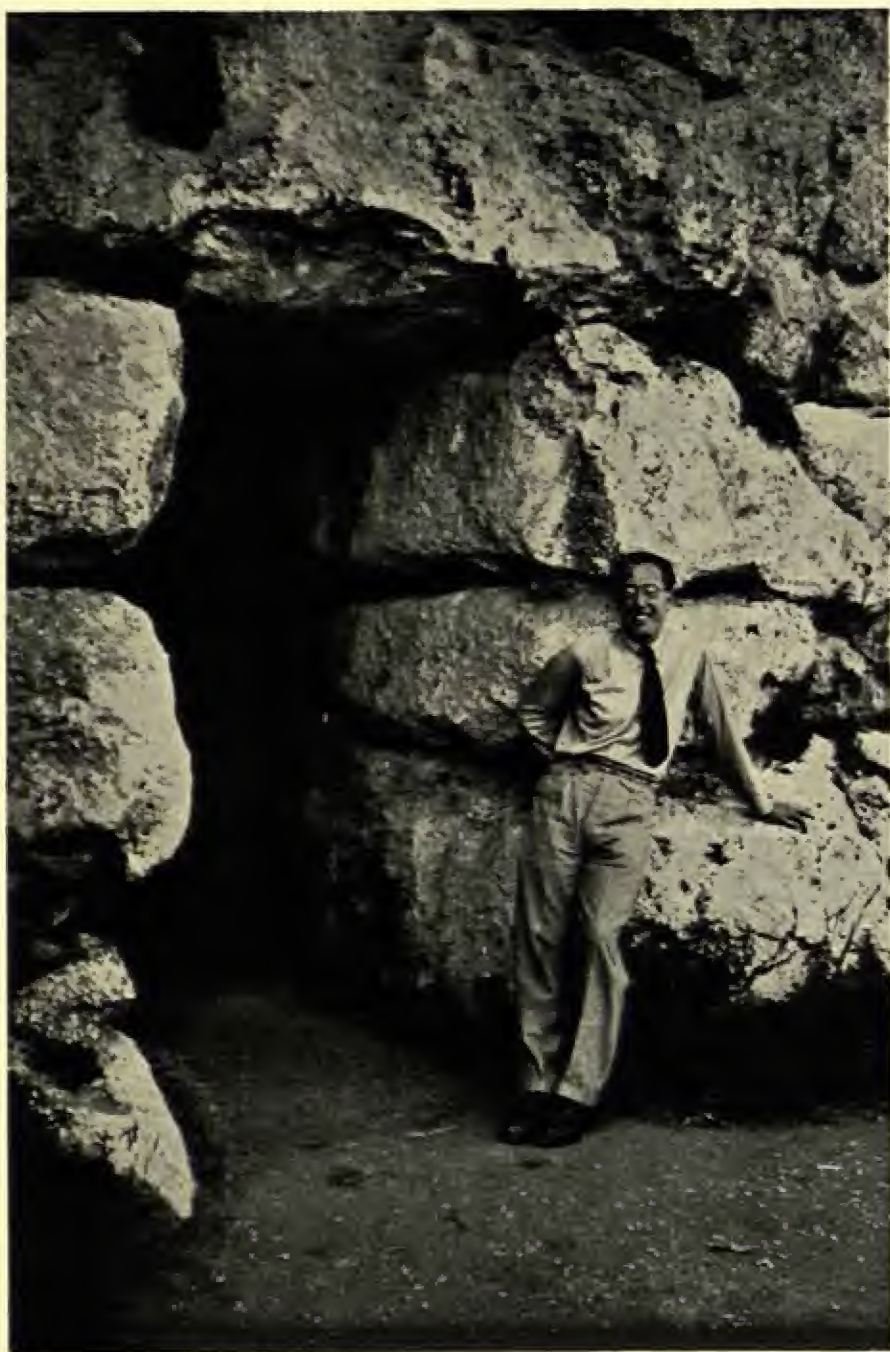
Of all the periods of construction we find most of interest in the lowest level, that of the cyclopean wall, upon which rests immediately the Roman wall, to which may have justly been applied Livy's term *Scipionum opus*; this is the portion that consists of cushion-shaped blocks with Iberian characters engraved on them, though comparison with those known from coins suggests a date not far removed from that of Scipio, while elsewhere a later epoch is indicated.

* Translated by the Editor, who thanks Mr A. W. Clapham, F.S.A., for first drawing his attention to the subject, and Mr W. J. Hemp, F.S.A., for one of the illustrations.

¹ *Callipolis illa, quae per altam moenium proceritatem et celsam per fastigia subibat auras, quae laris vasti ambitu latere ex utroque piscium semper ferax stagnum impremebat.*

² *Problemes d'histoire antiga i d'arqueologia tarragonina.* Tarragona, 1925. The site has been placed between Tarraco and Salauris by W. Christ, *Avien und die ältesten Nachrichten über Iberien und die Westküste Europa's*, (Abhandlungen der K. Bayer. Akademie der W. I. Cl., Band xi, Abt. 1, München, 1865), and A. Schulten (*Fontes Hispaniae Antiquae*, 1, *Avieni Ora Maritima*, Barcelona-Berlin, 1922); K. Müllenhoff identified it with Barcino (*Deutsche Altertumskunde*, Berlin, 1890).

PLATE I



GATE OF CAPISCOL, TARRAGONA
Ph. J. Martínez Santa-Olalla

PLATE II



GATE IN SOUTH WALL, TARRAGONA
Ph. W. J. Hemp

PLATE III



TOWER OF ARZOBISPO, TARRAGONA, WITH SCULPTURE AT THE TOP, ON LEFT
Ph. J. Martinez Santa-Olalla

PLATE IV



THE GREAT TOWER OF ALMANZORA
Ph. J. Martinez Santa-Olalla

THE CYCLOPEAN WALLS AT TARRAGONA

The cyclopean hedge³ of Callipolis or Cesse surrounds the highest part of the hill on which Tarragona is situated, and has a more or less oval shape, the total circumference being 1250 metres (4200 feet). The state of preservation is particularly good in the portion called Falsa Braga, and it is good in general elsewhere except to the west, where it has disappeared and is only preserved below the surface; there the remains, though slight, are enough to enable the exact course to be determined with strong probability.

To this undoubtedly cyclopean hedge there was attached, according to certain 16th century accounts,⁴ another much greater one which surrounded the hill of Tarragona reaching almost to the sea and having a total length of 4000 metres (13,113 feet) of wall of cyclopean workmanship. If that account is reliable—which only adequate investigation can decide—and it bears every appearance of truth, it implies that the city consisted of two walled enclosures, the smaller and higher being a true acropolis and the other corresponding to the city proper.

The workmanship of the walls is typically cyclopean. It consists of huge blocks often two metres ($6\frac{1}{2}$ feet) long and occasionally attaining a length of three or four metres (about 10–13 feet); they are almost unshaped, only roughly trimmed and generally of irregular contours, presenting an often barbaric ensemble that is increased by the typical picturesqueness of this form of architecture. Combined as this is with the rest of the facing, the whole acquires a certain rhythm and uniformity in spite of its variety. With the big blocks were mingled small ones to fill in the gaps. The wall was constructed of two superimposed courses of big blocks, united by small stones, earth and every kind of material collected indiscriminately. The total width is six metres ($19\frac{1}{2}$ feet) on the average, though there are sections which are both narrower and wider. The maximum height still preserved reaches to six metres in several places, and occasionally surpasses it.

There are six gates (PLATES I–II). Three are almost completely preserved—Portella in the southeast, Capiscol to the north and Rosario to the northwest. Two, San Antonio and Arzobispo, are wholly masked. The other, San Magin, has been destroyed. The gates have lintels consisting of huge blocks resting on others which form the jambs on either side. The height of the gates reaches a maximum of about

³ I thus translate the Spanish 'recinto' which corresponds to the French 'enceinte' and the German 'Ringwall'. The word is used in the west of England to describe the stone walls, usually of large blocks ('Giant's hedges'). TRANSLATOR.

⁴ L. Pons Icart, *Libro de las grandezas de Tarragona*. Lérida, 1572.

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2½ metres (9½ feet) in the case of the biggest, with a maximum width of 1.85 metres (about 6 feet). The length of the entrance-passages is exactly the same as the width of the wall, that is to say about 6 metres (19½ feet). The gates are straight and simple ones, like those at Tiryns,⁵ and resemble those met with in walls of the Talayot culture⁶ and in several Greek forts of the Iberian peninsula itself.⁷

The defences of Tarragona were partly completed by towers which served to strengthen the wall and to defend the gates against which they were set. The towers which remain standing are actually two in number, those of Capiscol and Arzobispo (PLATE III); since that of San Magin has gone, together with the accompanying gate.

The cyclopean walls of Tarragona give an impression of greater primitiveness than they actually have, owing to the rude workmanship of the limestone blocks, and above all to their colossal size. But if one examines the design of the wall, making due allowance for the ravages of time, one finds oneself in the presence of a highly developed system of fortification, with a well thought out scheme of defence—a monument which in both size and efficiency may well be compared with Helladic structures, especially with those of Tiryns and Mycenae.

The age and origin of this magnificent work was the subject of much discussion in former times, and it was absurdly attributed to the Hittites, Pelasgians, Etruscans and so forth. Today everyone is agreed about its Iberian origin,⁸ except A. Schulten who has resuscitated the Etruscan theory⁹ which he supports with arguments more ingenious than convincing.

The connexion between these walls and those of the Greek colony of Emporion have been recognized as a fact, which gives us a valuable chronological datum-point.¹⁰ Tarragona cannot have existed at a date

⁵ K. Müller, *Tiryns*, III; *Die Architektur der Burg und des Palastes*, Augsburg, 1930.

⁶ J. Martinez Santa-Olalla, *De Prehistoria mediterranea. Las islas Baleares y su cultura prerromana* (Actas y Memorias de la Sociedad Española de Antropología, Etnografía y Prehistoria, IX, 1930).

⁷ P. Bosch Gimpera, J. de C. Serra-Rafols i A. del Castillo, *Emporion*, Barcelona, 1934.

⁸ See note 1.

⁹ A. Schulten, *Die Etrusker in Spanien*, Klio, 1930. The philological basis has been discussed by C. Battisti, 'Tarracina—Tarraco e alcuni toponimi del nuovo Lazio', *Studi Etruschi*, VI, 1933.

¹⁰ Rhys Carpenter, *The Greeks in Spain*, Bryn Mawr, 1925.

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earlier than the Phocaean colonization of the Spanish coast because of the total absence of any antecedents or indeed of the possibility of such. I regard it as at least highly probable, if I have not actually proved it, that 'cyclopism' is not simply a technique common to the whole of the Mediterranean area, and for that reason explicable in each instance as an independent example of the phenomenon of convergence; but that it represents a culture which was originally confined to about the 12th century B.C., having a wide distribution from Anatolia to the Balearics,¹¹ and that thereafter it was continued in Greek historical times, that it naturally influenced the Etruscans, and that it was last manifested in Iberia through the medium of the Greek colonies.

So brief and diagrammatic an exposition of facts and ideas which in good time I shall deal with at adequate length, may make the genealogy I have suggested seem somewhat arbitrary. But it should be borne in mind that the discoveries and work of the last few years have brought forward evidence of the large element of Helladic culture in that of the historical period of Greece; and that there has been a clarification of the relations between the Ahhijava of the archives of Boghaz Keui and the Hittite Empire.

The case of the cyclopean walls is paralleled by the Tholos-tombs of Helladic Greece, Asia Minor, Etruria and South Russia,¹² which might have extended to the Iberian peninsula, as I have suggested,¹³ and been included within the Roman epoch. These walls of the Iberian peninsula—of Tarragona, Gerona, Ampurias, Olérdola and others yet to be discovered—have none but a Greek model; their resemblance to those of Mycenae and Tiryns is simply due to the fact that they are of barbaric construction. It is an atavistic resemblance, due not merely to technique but also to a similarity of culture in each case.

This type of cyclopean fortification, transmitted by the Greek colonists, enjoyed great popularity and was widely adopted in Spain, as my recent discovery in Andalucia demonstrates in a striking fashion.¹⁴

¹¹ J. Martinez Santa-Olalla, 'Elementos para un estudio de la cultura de los talayots en Menorca', *Actas y Memorias de la Sociedad Española de Antropología, Etnografía y Prehistoria*, XIV, 1935.

¹² F. Schachermeyr, *Etruskische Frühgeschichte*, Berlin und Leipzig, 1929 (reviewed in *ANTIQUITY*, 1930, IV, 528, by Dr Randall MacIver).

¹³ J. Martinez Santa-Olalla, review of G. Bonsor, 'An archaeological sketchbook of the Roman necropolis at Carmona', *Actas y Memorias*, 1934, XIII, 247.

¹⁴ *Ib. id.*, 1935, XIV ('Fortificaciones ibericas').

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The walls and rectangular towers of La Almanzora¹⁵ (PLATE IV) are faithful copies of those of Tarragona, although characterized by skilful workmanship and expert masonry which compares more closely with their immediate Greek models; whereas the barbarousness of Tarragona, Gerona and Ampurias itself connects them with examples of the end of the Bronze Age. The use of a constructional method and system of walls and gates of a type, originally Greek but becoming later specifically Iberian, is very interesting in contrast with walls such as those of Cerro de las Cabezas de Fuente Tójar (Cordoba), with semi-circular towers, and those of Osuna¹⁶ of a similar type and appearance.

The date of the walls of Tarragona cannot be placed, according to Bosch Gimpera and Rhys Carpenter, much after whatever date we assign to those of Ampurias: that is to say, the fortifications of Callipolis were made about the middle of the 6th century, when Emporion had not yet been founded by the Phocaeans (it was the Neapolis of the second half of the 6th century, which explains its omission from the *Periplus* of Avienus). At this date the splendid walls mentioned in the verses of the *Ora Maritima* already existed at Tarragona.

¹⁵ The ruins are situated on a hill beside the road from Cordoba to Priego, at the confluence of the rivers Salado and San Juan.

¹⁶ A. Engel and P. Paris, 'Une forteresse ibérique à Osuna'. Fouilles de 1903. *Archives des Missions Scientifiques*, vol. XIII. Paris, 1906.

Some Recent Excavations in Egypt

by S. R. K. GLANVILLE

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1. THE CITY OF AKHENATEN. Part II. The North Suburb and the Desert Altars : [The Excavations at Tell el Amarna during the seasons 1926-1932]. By H. Frankfort and J. D. S. Pendlebury, with a chapter by H. W. Fairman. Fortieth Memoir of the Egypt Exploration Society. London : Egypt Exploration Society, and Oxford University Press, 1933. 42s.

2. EXCAVATIONS AT ANCIENT THEBES, 1930-1. By Uvo Hölscher. Oriental Institute Communications, no. 15. University of Chicago Press and Cambridge University Press, December 1932. 5s 6d.

3. KARANIS : reports 1924-31. Edited by Arthur E. R. Boak. University of Michigan Studies, Humanistic Series, volume XXX. Ann Arbor : University of Michigan Press, 1933. \$2.50.

A CONCESSION to excavate the site of Tell el Amarna was given to the Egypt Exploration Society in 1920, and with the exception of two seasons the Society has sent an expedition there every year since that date. Beginning with the central town site, at the point where the *Deutsche Orient-Gesellschaft* had left it before the war, the work of the first two seasons was confined to the southern half of the city, although it included several important outlying buildings of a non-domestic character and the 'Eastern Village' of workmen's houses. The discovery of the North Palace in 1923 turned the attention of the excavators to the distant end of the site, leading them to the building of a new house from which to work and to the discovery of other official buildings at the extreme north of the bay, and a group of houses connected with them. These last have not yet been completely excavated.

A more important complex of mounds, in between that 'Northern city' and the central part of the town with its royal palaces and great temple of the Aten, then claimed the Society's attention. This was the large area, clearly defined on all sides, except possibly on the west where it ran into cultivation, called by the excavators the North Suburb. This, with a brief chapter on the comparatively unimportant group of Desert Altars to the northeast, forms the subject of the Society's second memoir, on its excavations at Tell el Amarna.

The work described occupied four seasons, during which the staff varied from year to year, though a nucleus passed on on each occasion. During the first two years Dr Frankfort was in charge ; during the next two Mr Pendlebury. Each year saw the introduction of a new

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architect to the site, but continuity was maintained in each change-over after the first.

It is a common-place that Tell el Amarna is *sui generis* as an excavating site in Egypt, in that it alone offers an opportunity to discover, in any sort of intelligible conditions, the remains of a pharaonic city. And though the temples, palaces and other official buildings of Amarna are of historical and archaeological importance, such types of buildings are to be excavated elsewhere ; while this peculiarity of the site makes the domestic buildings—in other words private houses of all sorts and conditions, whether considered individually or in 'town planning' units—the most valuable material for the excavator. The Egypt Exploration Society's first memoir on the site dealt largely with the houses of the central town, and was the most important contribution to date on the subject of Egyptian domestic architecture ; but it also included accounts of public buildings. The writers of the present volume, with the advantage of being able to use its predecessor as a stepping-stone, and of being themselves virtually confined to a single closely-connected group of houses (nearly 300 all told), clearly had the opportunity to say the last word on Egyptian domestic architecture for some time, and have taken it.

The unusual opportunity called for a new technique, or rather an adaptation of existing principles of archaeological publication—in Egypt chiefly associated with the description of cemeteries—to a specialized area. The authors of the *City of Akhenaten I* were aware that their account of the houses dug by them must be followed by others dealing with the remaining houses in the main town area. For this reason they dispensed with an adequate index. Frankfort and Pendlebury in publishing a completed section of the site have put on record not merely the constructive results of their work, but, in condensed form, a statement of every scrap of material that could be used as evidence of any kind by future students of the site.

A brief introduction to the position and history of the North Suburb is followed by the longest chapter in the book, in which every house is discussed individually ; with the description of each house a note is appended of the most important objects found in it. These descriptions vary from several pages in length to a mere mention. On the whole they are always sufficient, and rarely waste words. Chapter three is an index of houses in numerical order—in the previous chapter topographical considerations dictated the order—with a complete catalogue of the objects found in each house attached to it. A few

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remarks which could not conveniently be included in the foregoing are gathered together in a chapter on Architecture and Objects. With the exception of the inscriptions, which rarely affect the discussion of the houses themselves, and which are treated separately by Mr Fairman, this comprises the record of the work on domestic architecture and town planning.

The essence of the matter therefore is comprised in the description of individual houses, and it so happens that more than half the substantial results can be exemplified, and are, by the first two houses described. The chief problem of the Amarna house has always centred round the nature of the so-called North Loggia, the windows and the upper storey. It had become more and more clear of late years that the main source of evidence for solving these problems was the remains of painted plaster that could be recovered in a house. The lessons of the Society's first year's work at Amarna, together with the earlier results of Petrie and Borchardt, had already been incorporated in a chapter of the *Mural Painting of El 'Amarneh*, edited by Frankfort, before the present memoir was written. Both the houses referred to above had been discovered however before 'Mural Painting' went to press, and some of the deductions made in the new publication had been adumbrated in the other. All these had centred round the painted mud fragments from walls, windows, ceiling and rafters. With these results in their hands the excavators were able to make far greater use of the new material of this kind which came to light in a large number of houses in the North Suburb. The careful assembling of every piece of plaster is only surpassed, throughout this chapter, by the metaphorical assembling of fragments of evidence thus afforded, until the whole interior decoration and construction of the typical house has been restored.

Beside this eminently successful treatment, both in the field and on paper, of the essential problem of the site, the remaining information scattered about the book is of less importance; though some very interesting conclusions with regard to the site arise from the merchants' quarter on the north edge of the area. The North Suburb was on all the evidence a later development of the main town site and, even within it, it is possible to observe the sequence of building operations to some extent; even that it was unfinished, and large estates still in progress of construction.

The outstanding houses or estates—outstanding either for their plans or for points of construction—have been discussed in the *Journal*

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of *Egyptian Archaeology* at the time of their excavation. Since houses were made to live in and not merely to lie down dead in, like desert graves, they offer far more scope for archaeological conjecture than does the ordinary cemetery publication ; and every excavator with imagination is bound to start hares which may not be run to earth within the limits of a review, if (to change the figure) he is given a fair-sized Amarna ground-plan of which to make a castle in the air. Further an archaeological memoir which is primarily a statement of discovery cannot find room to discuss all its discoveries. Even so a little more might have been said on a number of points : *e.g.* the unique ivory shabti (p. 54) ; the unique (as objects) truncated pyramids of limestone for bed-legs (we know of their existence from earliest times from paintings, reliefs, etc., but here was evidence of the reason for their use) p. 8 ; the bronze frog called a weight—but why the lead plug in the base ? (p. 8) ; there is no comment on the predynastic bowl of hornblende porphyry (p. 39) ; nor any discussion anywhere of the several skeletons found in the houses. Were they contemporary in all cases ? (p. 43, etc.) ; the colour but not the form of the columns is mentioned (p. 98). The restorations of these are presumably based on evidence from the Tombs ; finally Hatiay's lintel (pp. 63 and 109) surely calls for some remark on the use of what are generally regarded as funerary formulae and terms as part of the main interior decoration of a house. (Compare the inscription on the front door jamb(s) and elsewhere, of the house of the Vizier Nekht in the southern part of the city (*City of Akhenaten*, I, 144, 5), and the use of the epithet *m3° hrw* there with that of *whm nḥ* in the case of Hatiay).

The ancillary chapters are mostly in the nature of indices. A brief and scholarly account of the inscriptions by Fairman adds the names of a number of sources of wine to the known list, and incense as a new commodity recorded on jars from Amarna. The year datings confirm the accepted chronology and produce strong evidence for the date of the North Suburb, and with other inscriptional evidence support the contention made some years ago that Amenhotep III lived on into the 7th or even the 9th year of the reign of Akhenaten, and possibly if not probably at Akhetaten itself.

The Desert Altars (chapter v), originally planned by Petrie, yielded little or no information beyond what he conjectured as to their nature, but contained one of the inscriptions on which the above statement about Amenhotep III is based. The pottery has been retyped once again and corpora of beads and amulets, etc., begun. All these are admirably cross-referenced.

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A few inconsistencies call for revision in the final volume on the site. The architect of the season 1926-7 (who was responsible for the planning of the most informing houses from the point of view of construction) would be more easily recognised by his friends if designated as 'H. B. Clark' than plain 'Mr Clarke'. The large piece of plaster frieze which Frankfort believes (rightly it seems to me) to have fallen from the outside of the front door of House v. 37.1 appears in the restored section (pl. xvi) to have been placed over the inside of the door, if I understand the drawing. On page 44 evidence for Roman occupation of the site is referred to but not given. The implication (p. 98) that bricks made in a wooden mould are unusual is remarkable in view of other evidence, *e.g.* the Tomb of Rekhmirē, shawabtis' implements, etc., quite apart from modern practice, that this was the usual method. On the same page a new term 'north hall' for what has in earlier chapters of the book been called 'front hall' = the old 'North Loggia' (which is now moved to the first storey) is introduced with some confusion. Further the statement there and pp. 30 and 44 about brick walls having an air-passage do not tally. It is implied in the text (p. 99) that only that side of a house on which lay the entrance was whitewashed; but in the restorations (pl. xvii) both visible sides of the house are so decorated. The legend on the inset plan of the Desert Altars complex (pl. xxvi) is illegible, and neither it nor the large plan indicate which buildings are those referred to as 1, 2 and 3 in the text (p. 102).

The most fruitful source, both of small antiquities and of architectural material, of the Amarna school, outside Akhetaten, was the Palace of Amenhotep III at Medinet Habu, or more correctly at Malkata close by. It may well have been the immediate source of inspiration for some of the Amarna-type features of the palaces of Ramesses III in his great Amen temple complex at Medinet Habu, of which the Oriental Institute of the University of Chicago has undertaken a complete Architectural (as well as Epigraphic) Survey in the last ten years. The architectural survey necessitated prolonged excavations, but by the end of the season 1930-31 Dr Hölscher, who was in charge of the Survey throughout, had completed the excavation of Medinet Habu itself except for the mound in the centre of the west side of the Great Girdle wall.

The report 2 here noticed therefore sums up the final plan of the Temple and the units, such as the two successive palaces of Ramesses III, within its outer fortified wall. A quay was found outside the great eastern 'fortified gate', and Dr Hölscher has some interesting remarks

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on the probability of the existence of canals from the Nile to all the mortuary temples of Thebes. He is also able now to give us a completed picture of the famous 'fortified gate' which he studied over twenty years ago in his monograph 'Die Hohe Tor'. He emphasizes the double nature of the building—the fortified base, and the lighter side of the upper storeys—for which he would use the term 'kiosque'. He is at pains however to argue that this was not the permanent harem of the king's ladies, who, he maintains, were housed in the palace. His architectural reasoning on behalf of the latter part of this statement seems stronger than his logic in denying the former. But in effect most people will be convinced that his views are right.

In a very brief survey, Dr Hölscher proceeds to sum up the results of his excavations as far as the later history of Medinet Habu is concerned. He traces the varying fortunes of the temple itself, and of the settlements of one kind and another, private houses, sanctuaries and tombs, that occupied its environments down to Coptic times and the cessation of all activities there with the Arab conquest.

The slightly irregular shape of the Temple of Medinet Habu at its northwest corner suggested to the excavators the presence of an earlier building in the vicinity. Subsequent digging resulted in the discovery of the remains of a temple built by Ai and usurped by Horemheb at his accession. An ostrakon which appears to mention the official taking over of the temple by Horemheb in his 27th year is used by Hölscher to confirm the durations of the reigns of Akhenaten, Tutankhamen and Ai, whose highest known year dates he quotes as 18, 6 and 4 respectively. Thus they reigned (he argues) more than 17, 5 and 3 years respectively, and if we allow an average of half a year extra for each, we get a total of $26\frac{1}{2}$ years. Horemheb, as we know, counted his years from Amenhotep III since he regarded the intervening kings as usurpers, and from the foregoing arithmetic he could not have come to the throne till his 27th year. Substantially this argument is correct; but there never was a year-date 18 for Akhenaten (see *City of Akhenaten*, II, 104); no account is taken of the overlap in the reigns of Amenhotep III and his successor; and Smenkhkare's reign is neglected altogether (in fact he almost certainly reigned with his predecessor for part if not all of his own reign, so that this may make no difference to the calculations).^{*} If Dr Hölscher considers that Horemheb reckoned

^{*} I cannot find confirmation of the statement which has often been made that a year-date 9 has been found on a vase from the tomb of Tutankhamen. If this were the case, both Hölscher's computations and my argument which follows would require modification.

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his regnal years 'from the death of Amenhotep III' (p. 51 and again p. 53) his calculations are considerably out, for nothing is now more clear in this difficult phase of Egyptian chronology than that Amenhotep III lived well into the reign of Akhenaten, probably until the latter's 9th year. (See above, p. 82). This being so the interval between Amenhotep III's death and Horemheb's succession is, on Dr Hölscher's figures, $(17-8) + 5 + 3 + 1$ [since the fraction of the 9th year for the end of Amenhotep III's life cancels out with the fraction of the 18th year of Akhenaten] years = 18. If we add a possible 1 year for Smenkhkarē we are still 8 years short of the total required to make Horemheb's 'year 27' his first year on the throne.

On the other hand if we suppose that Horemheb reckoned his regnal years from the *accession of Akhenaten*, the minimum durations of the reigns of Akhenaten, (Smenkhkarē), Tutankhamen and Ai occupy almost exactly the required interval of 27 years. Dr Hölscher is almost certainly right in taking this to be a record of Horemheb's official adoption of the temple, and as confirmation of the accepted duration of these 18th dynasty reigns.

For purposes of comparison permission was obtained from the Service des Antiquités to excavate the Ramesseum once again. The result was some very interesting plans, especially that of the palace of Ramesses II on which the first of Ramesses III's at Medinet Habu had clearly been modelled. Further, within the Temenos of the Ramesseum was discovered, close up against the north wall of the main temple of Ramesses II, a small one of Seti I.

The report was published in December 1932 and is an admirable example of the Oriental Institute's method of bringing out punctually scholarly accounts of work done in the field, with sufficient information to satisfy general scientific needs as well as the layman's curiosity, and yet without any loss of interest to the subsequent definitive publication.

The Karanis Report 3 for 1924-31 also anticipates, I imagine, a full-dress publication in one or more volumes to appear when the site has been completely excavated. But it differs from the Theban account just noticed in that those units of excavation at Karanis which are here dealt with are discussed as fully as could be wished, and will require no further treatment unless future excavation should make it necessary to modify conclusions at any point.

Two areas are described. The first, the North Temple, was excavated in 1924-5, when Dr Boak, who writes this chapter, was a

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member of the expedition. The temple was planned two seasons later by Mr H. Falconer, and reports by Messrs. J. L. Starkey (who was Director of the Michigan excavations from 1924-26) and S. Yeivin (who was on the staff for the first four seasons of the dig) have been used in the present account. It is not a very important building. Founded not earlier than the first century A.D., it is of local limestone, of Egyptian type as transmitted by the Ptolemies, and apparently the first temple on that particular piece of the site. It was abandoned about the middle of the third century and used as a dump. It was still buried when Grenfell, Hunt and Hogarth worked at Karanis in 1895 and 1900. Less than a dozen objects were found during the excavation, and these will be thought by some to be barely sufficient to justify the provisional ascription of the cult, for which the temple existed, to 'Souchos in the form Soknopaïos combined with that of Zeus Ammon Sarapis Helios, and possibly that of Isis'. In fairness to the author, however, it must be said that his is a statement of possibility only.

Mr Enoch E. Peterson, who has been in charge of the excavations since the season 1926-27, had, in the second area discussed, a far more complex piece of work to deal with. This was the precinct of the South Temple, that of Pnepheros and Petesouchos, first noticed by Grenfell, Hunt and Hogarth in 1895 and mentioned in *Fayum Towns*. Although these scholars cleared part of it, its systematic excavation was left till the University of Michigan undertook it in 1929-30. The excavation of the temple itself, a limestone structure on the site of an earlier shrine probably of mud-brick, presented little difficulty. But within the temenos were houses, chiefly connected with the temple service, but others also, besides gateways, a fore-court and Pylon, all to be disentangled and reduced to four main layers of remains, corresponding to four fairly closely defined periods. These periods cover the first to the early fourth centuries A.D. The temple, though confined to these, is again on the Ptolemaic model.

The difficulty in planning the houses lies in the fact that houses have as varying lengths of life as their owners. The change over from one layer to another may be marked in some cases by the demolition of the earlier house to make room for the building of a new one; in others by the use of six feet of the earlier walls as the foundation for the later; and in others again by a few reconstructions within an existing building which may then remain intact for the whole succeeding period. Compared with a single-period city like Tell el Amarna, Karanis is a nightmare. Mr Peterson's account is necessarily highly technical—and the

SOME RECENT EXCAVATIONS IN EGYPT

houses presented little of the human interest discoverable at Amarna—but it calls forth admiration not only for its lucidity, but also for the witness it bears to his acumen in the field. In the task of making these very complicated layers of building intelligible to the reader he has been splendidly assisted by his architect Mr I. Terentieff, whose plans and elevations are both essays in themselves, and a delight to look at.

Two final chapters give reports on various remains found in other parts of the site during the years which fall within the scope of the report. Dr J. G. Milne discusses a hoard of 860 Alexandrian tetradrachms dating from 163-4 A.D. to 268-9; and another of 1074 minimi of about 430 which leads him to make some interesting comparisons between ancient and modern depreciation in currency values. Both hoards come from private houses; and from a third such a second hoard of minimi, deposited about 410, and numbering 582 pieces, is catalogued by the late Mr A. G. K. Hayter with some account of the mints. He compares it with the hoards of fifth-century minimi found at Richborough Castle ten or more years ago.† Botanical and zoological reports by some six experts, chiefly of the University of Michigan, complete the book. These are confined to lists of the material examined and a few notes, but make an extremely valuable addition to the report on the eight seasons' work. The absence of rye among the cereal remains is noteworthy; and of anything approaching the cucumber among the other fruits and vegetables. The domesticated animals are those we should expect, though here the camel is missing. An interesting point is made, that while 'the skulls and other bones came mainly from the courtyards attached to the houses, . . . most of the horns were found inside the houses themselves, where they perhaps served as ornaments'. The two wild animals, gazelle and hartebeest, are represented only by horns. Remains of the Nile crocodile and of a lizard; of three species of fish (all of which appear to have been used as food); and of marine and freshwater shells were also identified. The last, found in the houses, 'apparently were kept as curiosities or as playthings for children'.

In the list of staff for 1926-7 D. Anthony Chubb should read J. Anthony Chubb.

† Second report on the Excavation, 1928.

Notes and News

MODERN RED-BURNISHED POTTERY IN GRAND CANARY

In 1913 I visited the cave-dwellers of Atalaya near Santa Brigida, about 7 miles from Las Palmas, Grand Canary, and obtained a number of specimens of red-burnished pottery which are now in the Pitt-Rivers Museum, Oxford. The technique of the manufacture of this ware may be of interest to excavators, who frequently come across it in southern and eastern lands. I understand that red-burnished ware is still made (by hand) in Rhodesia.

The caves of Atalaya are excavated in the top and sides of a small hill overlooking a deep ravine. Some of them have glass windows and wooden doors and are by no means uncomfortable inside. There are several potters in the village; I saw the caves of three; all are women. The raw clay is obtained from the bottom of the ravine. It is kept in lumps in an alcove in the side of the cave, and when required for use it is ground up with a round pebble from the torrent-bed, upon a flat stone. The ground clay is then sifted in a basket-sieve, and when required is mixed with water and kept in a heap by the side of the potter.

The raw material of which the red pigment is made consists of red volcanic earth which occurs at Cumbre. The rough lumps are ground up with a round pebble on a flat stone. When ground the rouge is sifted in a sieve formed of a piece of coarse cloth (or sacking) tied over the detached rim of a pot. When required for use the sifted rouge is mixed with water in the bottom of a broken pot. As far as I could make out the rouge is applied with the fingers. When finished the pots are dried in the sun, and later are piled upside down in a heap, mixed with dry brush-wood; this is ignited in the open.

At Santa Lucia, a remote village at the south end of the island I obtained a large water pot from a store-keeper near the inn where I slept. It was actually in use, but the water was poured out and the pot sold to me. On the shoulder are unpierced lugs, and I observed that these were used by the women to steady the pots on their heads when returning from the well. In the mouth of the pot is placed a

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saucer which floats on the water and prevents it from spilling. I was told that these pots were made at San Bartolomé or Tunte, a small village near Santa Lucia ; the type is common all over the island. The water kept in them remains refreshingly cool, even in the midday heat.

Some of the pottery in the Las Palmas Museum is of precisely similar ware, though the shapes are different. There are also examples of the clay figurine so common in Mediterranean lands and in the East ; and the clay pintaderas are another suggested link with the same regions.

The best account of the archaeology and anthropology of the Canaries is in Dr E. A. Hooton's book, *The Ancient Inhabitants of the Canary Islands*, Harvard African Studies, vol. VII, 1925.

O.G.S.C.

THE DISCOVERY OF BRONZE

The date and place of the discovery of bronze are both unknown. Bronze is an alloy of copper and tin ; and since the natural deposits of tin occur only in a very few regions, it is possible to narrow the issue down to one of these regions. In view of its very early occurrence in Mesopotamia it is natural to look for the source somewhere in that neighbourhood. Ever since I began to be interested in these matters I have been anxious to know more about those mysterious tin-deposits of Khorassan, vaguely alluded to by travellers. Here is the latest account (from *The Origins and Development of Applied Chemistry*, by J. R. Partington : see review in *ANTIQUITY*, 1935, IX, 502) :—

' The most attractive hypothesis of the discovery of bronze is that which locates it in Khorassan, in Persia (the Drangiana of Strabo). E. K. von Baer, starting from a vague report of the traveller Burns that tin was found in the country beyond the Bamian Pass (perhaps the Hindu Kush), requested the officers of the Russian army in the Oxus to see if any tin mines existed there. Prof. Semenov sent him a letter from one Ogorodnikoff, which he reproduces, stating that an inhabitant of Meshed, an official of the Khorassan copper mines, reported rich deposits of tin (as well as of iron, copper, lead and sulphur) 75 miles from the town Utschan-Mion-Abot, and the tin mine Rabotje Alokaband was 22 miles from Meshed. This statement was confirmed by the " manager of the Russian Merchants' Society in Chorasán ", and Ogorodnikoff himself saw tin wash-basins and dishes " of old native workmanship ", which the inhabitants represented as made from local tin. The information, it will be seen, was obtained in rather an indirect way, although the result is often quoted. Tin ore is said to occur also near Tabriz and at Astrabad ; it is not found in Russian Armenia, but is reported in the Kurbaba Mountains near Tillek, between Sahend and the River Axares, where it is associated with copper and hence probably in vein form ; also near Migri on the Axares, and in Hejenan. It occurs in Asia Minor at Kastamuni, but although tin ore was said to be found in

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the Caucasus (Georgia), this is a mistake. If *aonya* in the Avesta is tin, the mines in the Paropamisus (Strabo's Drangiana) may have been worked at an early date.

'Although the supposed source of tin at Khorassan rests, as is clear from the above, on very insecure foundations and has been adversely criticised, it has been accepted by several authorities, and is perhaps the most probable so far suggested, although far too much super-structure has been built upon it by some archaeologists'.

Perhaps this copy of ANTIQUITY may fall into the hands of someone, in Iran, Turkmenistan or elsewhere, who can solve the problem. A visit to Meshed should settle the matter, and Meshed, though remote, is after all not very far from Baghdad nowadays. Will not one of our readers in Iraq or India make this problem an excuse for an unconventional holiday? (taking his camera with him). It is one of considerable importance in the history of human culture: for if these tin deposits are authentic, it may well be that this region is where the discovery of metal was made; and that is of course a landmark in prehistory.

O.G.S.C.

✓ SYRIA IN THE 3RD AND 4TH MILLENNIA

We quote below an extract from *The Bulletin of the American Schools of Oriental Research*, no. 60, December, 1935, pp. 3-5, omitting footnotes and a couple of passages of a technical character, and wish to acknowledge with thanks the permission readily granted for so doing. Professor Albright is reporting on the proceedings at the 19th International Congress of Orientalists held at Rome in September last; and he selects two papers read by Professor Dunand. He says:—

'In his first one [Professor Dunand] described the results of his excavation in the chalcolithic cemetery of Byblus (1931-2). This cemetery was found under the older Egyptian temple of Byblus, and must have been completely forgotten when the latter was first built, before the end of the Second Dynasty. Its date can hardly, therefore, be later than the third quarter of the fourth millenium (3500-3250 B.C.) and may be considerably earlier. The pottery (which the writer saw in June 1932) bears unmistakable points of similarity to the Ghassulian (*Bulletin*, no. 48, pp. 10 ff) and thus helps to confirm the now generally accepted chalcolithic date of the latter culture. The human skeletal remains are of special interest, since they were abundant and in part well preserved. The average height of the men was 356 cm. (5 ft. 2 in.), and the crania are prevalingly long-headed (in a few cases mesocephalic). As pointed out by Dunand, the physical type of these chalcolithic men of Byblus approximated closely to that of the mesolithic Natufians of Carmel, whose remains were recovered by Miss Garrod several years ago. It is also related to that of the Badarians of Upper Egypt, who flourished not later than c. 4000 B.C. Since the precise type of man in question survives only in traces, we are hardly justified in making any inferences with regard to the linguistic group to which it belonged. The

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most plausible view is perhaps that it represents the basic stock from which the northeast African Hamites sprang.

Dunand's second paper was even more exciting than his first one, since it dealt with a new script of the late third millennium. In 1930 he published a large fragment of a stone stela from Byblus, containing a new script, which resembled simplified hieroglyphs. Since then he has discovered a number of additional texts on copper in the same script, some of the new inscriptions being considerably longer than the one already published. The new texts are all incised in metal, and are hence linear; the number of separate characters now exceeds eighty, and the total number of different signs in this script can hardly be less than 120 . . . We can hardly be far wrong in considering the language of the new texts as Semitic . . . Dunand has been able to show that this script was in use before the destruction of the earlier Egyptian temple, about the end of the Sixth Dynasty, not later than the twenty-second century B.C. Since we have ample reason to believe that Canaanite was then the language of Phoenicia and Palestine, it follows that our new script was probably used to write an early form of Canaanite, even more archaic than the language of Ugarit (Ras esh-Shamrah). The inscriptions will be published by Dunand in an early number of *Syria*, after which we may attack the problem of their decipherment. If they are really written in Early Canaanite, we shall some day be able to reproduce the ancestral vowels as well as the original consonants of Biblical Hebrew.

Dunand's view that this new script is the direct progenitor of the Phoenician alphabet is more questionable. It is true that he has found some two-thirds of the later Phoenician letter-forms among the linear characters of the former. Since the number of different linear-forms in the former is so great, however, any smaller degree of coincidence would be rather strange. Moreover, a survey of the present epigraphical situation in Palestine, where we now have a bridge thrown across the gap between the Proto-Sinaitic inscriptions and those of the Early Iron Age, shows that the true source of the Phoenician alphabet is to be found in the alphabetic script first discovered in Sinai.

THE (BAND-KERAMIK) NEOLITHIC VILLAGE OF KÖLN-LINDENTHAL* (PLATE 1)

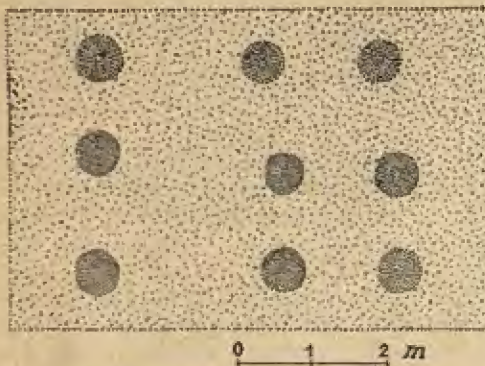
The prehistoric village thus named lies in the 'green belt' surrounding Cologne. The definitive account of its excavation is to appear as volume XI in the series entitled 'Römisch-germanische Forschungen', published by the German Archaeological Institute.¹ The excavations were carried out by the Wallraf-Richartz Museum in Cologne between the years 1930 and 1934; and since the results are of international importance, it is desirable to publish the principal conclusions reached in the form of a short note.

* Translated by the Editor.

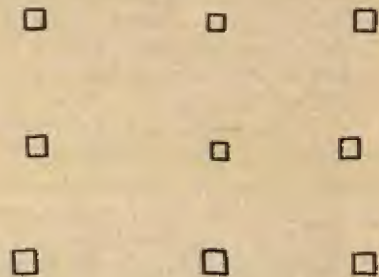
¹ Werner Buttler and Waldemar Haberey, 'Die bandkeramische Ansiedlung von Köln-Lindenthal'. *Röm.-germ. Forschungen*, Bd. II. Berlin, 1936 (in the press).

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It was decided from the outset to carry through the undertaking to completeness and finality, so far as possible. In the excavation of prehistoric settlements modern archaeologists hold the view that it is preferable to select a limited objective and to deal with it as completely as possible, rather than to make a few scratches in the soil and merely recover a few house-plans. We did not in fact lay bare the whole of the settlement-area at Köln-Lindenthal ; but the 30,000 square metres (35,880 square yards) uncovered have yielded so large a part of the village-plan that thereby the general appearance of the village may be visualized very clearly, and we can safely reconstruct the forms of individual houses, the chronological stages of the occupation, and the industries and social conditions of the inhabitants.



PLAN OF RECTANGULAR PILE-BUILT BARN,
NEOLITHIC SETTLEMENT, LINDENTHAL

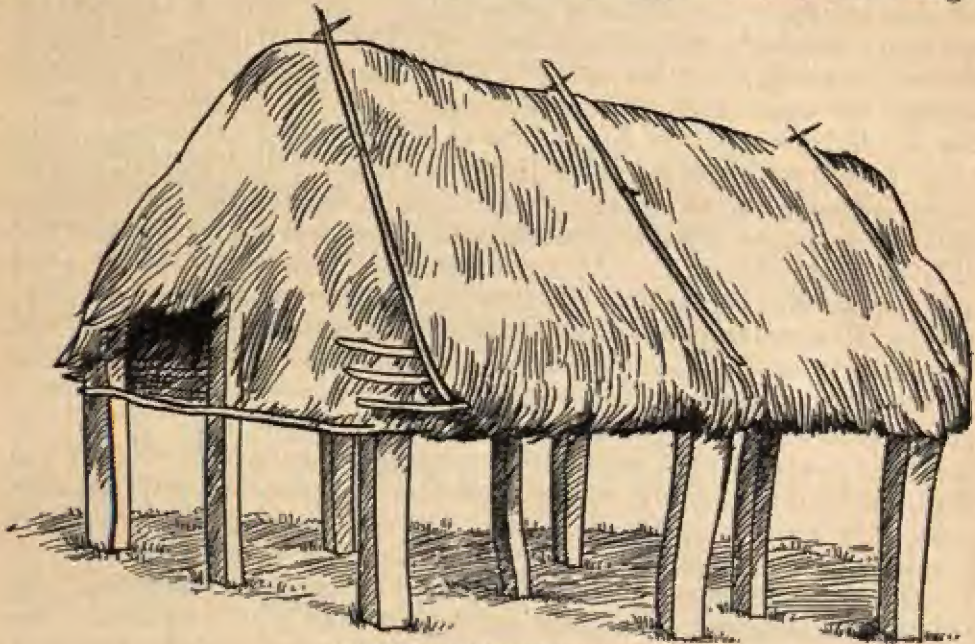


PLAN OF MAIZE-BARN, HUNGARY

Foremost amongst the structural remains must be set those numerous irregular habitation-pits (*Wohngruben*) which are so typical of the Danubian culture, and which occur again and again in its villages. An important fact was that, on account of favourable soil-conditions, the post-holes round the edge of the pits could be completely recovered, thus making possible the reconstruction here illustrated (PLATE I). The external shape of the huts was just as irregular as the shape of the pits lying within them. (This kind of building is called *Kurvenkomplexbau*, which may be translated the 'curved plan complex'). Side by side with these pit-dwellings, and with many single pits serving a different purpose, occur others of rectangular plan which were used for industrial purposes. There are first of all smaller four-sided buildings, like the modern Balkan granaries ; and there are also lengthy

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rectangular structures with many posts inside them which we regard as harvest-barns. Both types of structure are set on piles, with a raised floor. They were doubtless meant to enable the corn—whose ears were probably cut from the stalks in the traditional manner—to be spread on the platform of the barn after the harvest, dried and then threshed. This interpretation is confirmed by the location of the harvest-barns between village and fields. Opposite to them were the small four-sided structures scattered amongst the dwelling-houses of the village,



A MODERN MAIZE-BARN, HUNGARY

which as today in southeastern Europe might well have been used as storage-pits for winter supplies. This construction of barns on piles, so usual today almost everywhere in the world, thus goes back to the neolithic period, when our peasant culture was first established.

A restoration of the Lindenthal village at the last period of its existence therefore reveals a compact village community with buildings of many different forms. The settlement-area was protected by a palisade, bank and ditch, in which two entrances have been proved to exist. The village-site as a whole consists of an oval of about 180 by 220 metres (47,265 square yards) in dimension. The settlement

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was again separated into two parts by a cross-ditch, one part containing huts and granaries, the other being a small uninhabited depression in whose deepest part we found a water-hole reaching down to water-level. It is to be inferred that in this portion was the cattlefold, and that the cross-trench was intended to prevent the animals from wandering into the village.

But the village did not always look like this. Soon after the excavations began we found an older defensive ditch that branched off and indicates two adjacent settlements; and the investigation of the area shows that even these were not the oldest site. By means of numerous cross-sections and of a close examination of the abundant pottery² we were able to establish four periods. In the first were found a large number of harvest-barns belonging to a settlement that must have been situated some distance away. Then the settlement was removed further away from this group of barns, together with the houses and barns, and the whole site was finally surrounded with a palisaded trench. At some point of time this village must have been abandoned, and its inhabitants have migrated elsewhere, because the buildings of the next (third) period are strikingly fewer in number than those of the second. The third period cannot have been of long duration, and these people too must have moved away; all the buildings belonging to it shows traces of burning. Lastly the site was occupied by a numerically strong group which covered the whole of the protected area. Its numbers can be estimated, from the number of huts, to have amounted to between two and three thousand persons; the life of the settlement at a maximum of 300 years.

These conclusions, which represent only a small fraction of the total results obtained, were, and could only have been, reached by the investigation of a very large and homogeneous area. It is clear that amongst the Danubian peoples agriculture was already highly developed, because the harvest-barns are of a transitional form that indicates a long period of development. We have in the classical peasant culture of the Bandkeramik folk, so it now appears, the earliest tillers of fields in Central Europe. But the many settlement-changes at Lindenthal show that these peasants were still not wholly permanent settlers, but often changed their sites, like the precursors of settled communities in modern times. The reason is to be looked for in the industrial

² W. Buttler, 'Ein importiertes Hinkelsteingefäß aus Köln-Lindenthal und seine Bedeutung für die Chronologie der bandkeramischen Stile Westdeutschlands', *Germania*, 1935, XIX, 193 ff.

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conditions of the Danubian culture,³ that was probably still incapable of plough-cultivation with its associated manuring and crop-succession. Thus the soil would very soon become exhausted, new fields would have to be enclosed and finally the whole community would have to migrate and seek a new home. In this way one can explain the whole land-régime of the various neolithic groups, amongst whom a continual shifting of the settlement-sites is to be noted. The period of the 3rd millennium B.C. appears then as a crucial point in the history of the peoples of Europe; in the neolithic period was being laid the foundations of that permanently settled peasantry on which all the later advances of civilization were based.

WERNER BUTTLER.

STONESFIELD SLATE-TIPS (PLATE II)

We are indebted to Mr H. G. Dines of H.M. Geological Survey, for the following note on the Stonesfield slate-industry, to which we have added a concluding paragraph:—

The geological formation known as the Stonesfield Slate Beds occurs at the base of the Great Oolite. It is some 30 feet in thickness and consists of a variable series of sandy flags, oolitic freestones, limestones and 'slates' or tile-stones. The slate-bed proper, known locally as 'Pendle', is a layer, sometimes two, of fissile calcareous sandstone, seldom over a foot thick. This is found only in certain restricted areas in the north Cotswolds and at Stonesfield, between Charlbury and Woodstock, Oxfordshire.

Around Stonesfield the slates have been worked over an area of about two square miles, and the useful material is probably exhausted. There appears to be little authentic information regarding the early history of the workings. They were apparently active in the thirteenth century or earlier. In his *Natural History of Oxfordshire*, 1677, p. 77, Plot gives a brief but clear account of the methods of working. He states, '... the Houses are covered, for the most part in Oxfordshire (not with tiles) but flat-stone, whereof the lightest, and that which imbibes the water least, is accounted the best. And such is that which they have at Stunsfield, where it is dug first in thick cakes, about Michaelmas time, or before, to lye all the winter and receive the frosts, which make it cleave in the spring following into thinner plates, which

³ Waldemar Haberey, 'Das handkeramische Dorf von Köln-Lindenthal. Letzter Grabungsbericht', *Germania*, 1935, XIX, 107 ff.

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otherwise it would not do so kindly'. The industry at Stonesfield died about the end of the last century, though it is still active in the Cotswolds.

The earliest workings were at the outcrops which follow the flanks of the steep-sided dry valleys known as Stockley Bottom and Bagg's Bottom. The former of these extends across the foreground of the photograph. Old waste dumps are seen fringing the allotments and others are hidden beneath the trees of Stockley Copse on the near side of the valley. Later, the workings were carried underground by adit levels driven into the valley sides and by vertical shafts, some 60 or 70 ft. deep, sunk in and around the village. The adit entrances and waste dumps in Bagg's Bottom are seen, covered with scrub, in the top right-hand corner of the photograph.

The Stonesfield Slate Beds are of outstanding importance geologically, owing to the fossil flora and fauna they have yielded, especially to the mammalian remains, while as a roofing material the harmonious blending of the 'slates' with oolitic building stones is well known to all acquainted with Cotswold architecture.

The air-photograph illustrating this note was specially taken by Major George Allen, whose work will by now be familiar to readers of ANTIQUITY. It shows very well the slopes of the abandoned slate-tips, whose surface is now used as allotments. They are a striking instance of that rather rare phenomenon—medieval industrialism. In thus describing them, however, one must not be supposed to exclude a Roman *origin* for the industry. The fact that so many Roman villas were roofed with oolite slates makes it likely that the Stonesfield formations were used. There is, of course, a Roman villa at Stonesfield itself (the one discovered by Hearne at the beginning of the 18th century) and there are several others in the neighbourhood. It would be interesting to know whether roof-tiles from any of these villas can be definitely identified with the Stonesfield 'Pendle'.

CASTOR WARE FROM THE CAMBRIDGESHIRE FENS

The interesting sherd illustrated on PLATE III belongs to a comparatively uncommon class of vessel produced by the extensive Roman potteries in the valley of the Nene in the neighbourhood of Castor, Water Newton, and Wansford. The use of barbotine decoration in conventionalized animal and vegetable forms on Castor ware is common enough, the best-known subject being a hunt in which hounds chase a

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hare or deer round the girth of a beaker. Here we have a more ambitious subject, the destruction of the Lernean Hydra by Hercules. The figure of Hercules brandishing his club is shown with considerable vigour and success, but the artist's limited experience failed him when he came to the Hydra, so that the efforts of the hero to dash to pieces a kind of hybrid between an Aunt Sally and an octopus seem disproportionately great.

It is interesting to observe that the Giant of Cerne in Dorset is shown in a very similar attitude to that of our pottery Hercules, and that there is reason to believe that the hill-figure once grasped something in its left hand which has now disappeared. Mr Stuart Piggott has shown that the traditional name of the Cerne Giant, Helith or Helis, may be a much corrupted form of Hercules.* It is not suggested that the missing detail of the Cerne Giant is a Hydra, but it is just possible that those who laid out this chalk figure were familiar with this type of figured pottery. Certainly there was a common origin for both.

Our fragment is a product of the first season's work of the Fenland Research Committee on a Romano-British village site at Welney in the Fens of southwest Norfolk, carrying on a programme which has already dealt with prehistoric aspects of the region. The site is a remarkable example of ribbon development in ancient times, the form being conditioned not so much as today by the existence of a line of communication, but by the levée of a more or less extinct arm of the Well Stream, the main drainage channel of the southeast Fens to the Wash until the later Middle Ages. This dead arm of the stream was represented in Roman as in modern times by a low bank of silt 850 feet wide and 5 feet high. Along the middle was an open channel which became progressively more choked as the Roman period continued, till in the 4th century it was no more than a foul ditch filled with refuse from the small cottages standing along its edge on each side. A great deal more work has to be done before the site can yield up all its secrets, but already it is clear that the village lasted from the 1st to the 4th century, with an interruption during the 3rd century caused by the irruption of tidal water into the moribund channel. Although the site is 24 miles from the modern sea-coast there is no reasonable doubt that the Well Stream was affected by the tides in Roman as in later times. The reason for the sudden penetration of the tide into the decayed back-water is not yet clear. It brought with it silt which was deposited in

* *ANTIQUITY*, 1932, VI, 214.

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well-marked laminae, one for each tide, and also gave rise to conditions favouring the growth of plants which like brackish conditions. It may be that a sluice excluding the tides failed, or it is possible that the late Roman and post-Roman subsidence, which students of the Fenland are inclined to suspect began at this time, temporarily compelled the inhabitants to leave their dwellings when they were flooded by the tide-water pouring over the edges of the *levée*. Since the occupation was resumed later, and extended to the end of the Roman period, measures may have been taken to exclude the tides by various works. All of these points are undecided at present, but the total abandonment of the fertile silt fens to the north of the Welney site in the 5th century is a feature of the history of the district which seems only explicable on the basis of serious and continued floods.

The Anglo-Saxons made no settlements in these districts in Pagan times, and the human occupation was still restricted to the most favourable places at the time of the Domesday Survey.

When the work at Welney is completed it is expected that information will have been obtained which will clear up many of the problems of the topography of the southeast Fens in Roman and later times.

The excavation of Romano-British sites in the Fens gives good hope of recovering perishable objects which have long disappeared on high-land sites. Not long ago recognizable remains of a cart were found by a fenman in an ancient choked ditch. The whole matter is obscure, the more so because the remains were destroyed before their significance was realized. The date of the relic is uncertain, but the chances are strongly in favour of a Roman attribution. The many Romano-British farms are connected by miles of ancient driftways comparable with those which now intersect the modern fields, and the former existence of wheeled traffic here in Roman times is reasonably certain.

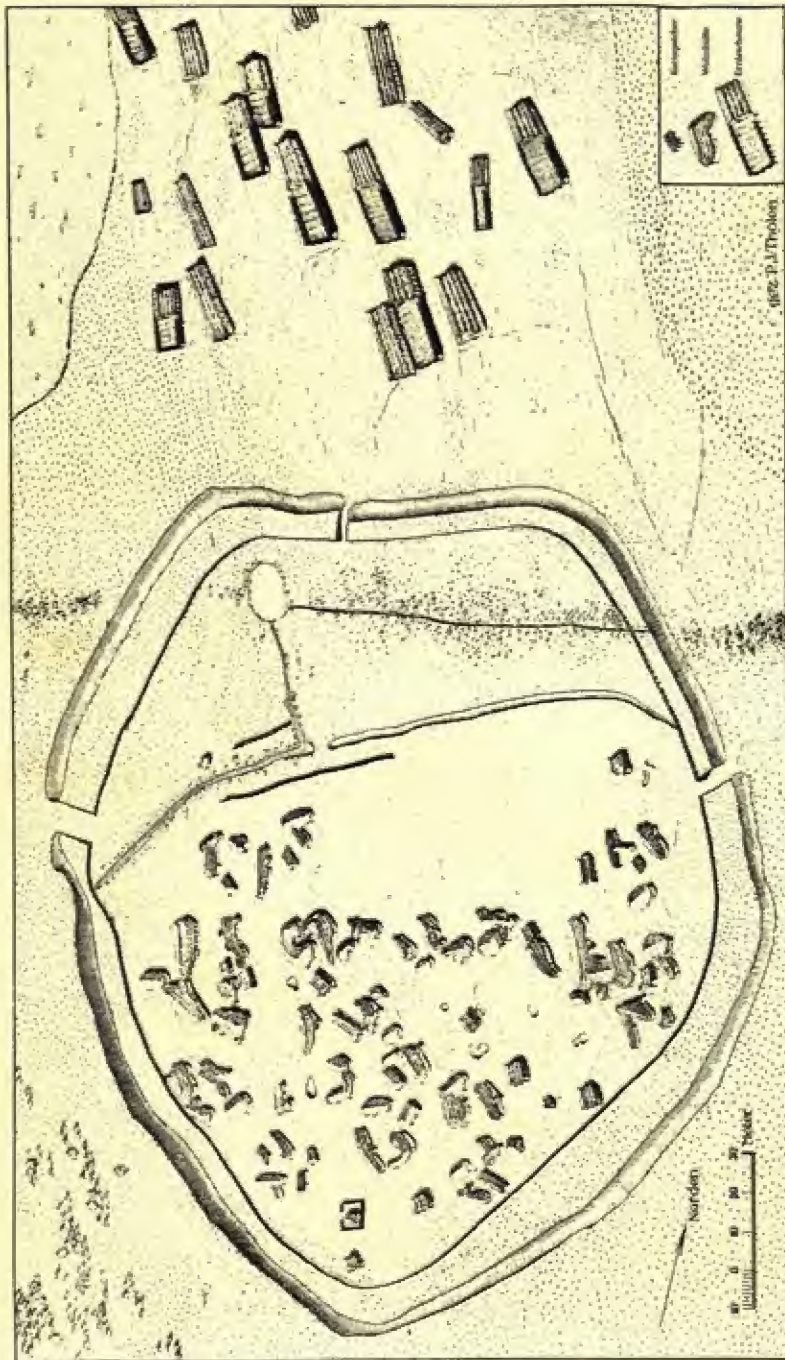
On two occasions in recent years perfect pairs of shoes have been found and thrown away, and at Welney a shoe-sole was found in the horizon of the earliest settlement. On this site a beginning has been made with systematic excavation, and we may expect more light on many obscure aspects of the equipment of the Roman-British peasant farmer.

C. W. PHILLIPS.

DEADMAN'S HILL, SANDON, HERTS (PLATE IV)

The chief interest of this note lies in the name 'Deadman's Hill'. Place-names so formed are not uncommon, and various explanations have, of course, been put forward (there is never any lack of *them*!).

PLATE I



A PEASANT VILLAGE OF THE NEOLITHIC PERIOD: A RECONSTRUCTION OF THE HAND-KERAMIK SETTLEMENT OF KÖLN-LINDENTHAL (3rd millennium B.C.) (See p. 89).
Ph. Rheinischer Museum, Köln

PLATE II



MEDIEVAL SLATE-QUARRIES AND TIPS, STONESFIELD, OXFORDSHIRE (See p. 93)
Ph. Major G. W. G. Allen

PLATE III



CASTOR WARE FROM A ROMANO-BRITISH VILLAGE SITE AT WELNEY, NORFOLK

(See p. 94)

PLATE IV



BARROWS ON DEADMAN'S HILL, BETWEEN ROYSTON AND BALDOCK, HERTS (See p. 96)
Ph. Major G. W. G. Allen

PLATE V



GOLD HELMET OF DRAJNA, RUMANIA : SIDE VIEW (See p. 98)

PLATE VI



GOLD HELMET OF DRAJNA, RUMANIA: BACK VIEW (See p. 98)

PLATE VII



RUINED CASTLE AT SOUTH RUDIWAN. (See p. 101)
Ph. R.A.F., Crown copyright reserved

PLATE VIII



RUINED CASTLE AT SOUTH KUDIWAN. (See p. 101)
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Actually the origin of the name in this instance is obvious. Strung out along the hedge, which itself follows a ridge of high land and forms the boundary between Sandon and Kelsall, are four round barrows, possibly more. They appear on the photograph as round white blobs, with (in the two further examples) a dark central disc very characteristic of barrows in this district. Such mounds are generally, and, of course, correctly, believed to be burial-places, and there are many rustic legends about them in various parts of England. The origin of this belief is undoubtedly due more to the accidents of digging and discovery of bones than to genuine tradition reaching back to prehistoric times. In this instance the hill has taken its name from the barrows which, from the air, form such a conspicuous feature of the landscape. Actually, on the ground, they are not nearly so obvious; of the six or seven possible barrows four at any rate are quite certain. The two larger white patches in the foreground, on either side of the Sandon road, *may* both mark the sites of barrows, but (without going into unnecessary detail here) neither is absolutely convincing on the ground. The nearer knoll is a remarkably steep bluff on which I suspect a windmill to have stood in medieval times. The whole group was discovered on 17 March 1934, by Major George Allen, whose air-photograph is reproduced on PLATE IV.

It should be added that the site lies just off the Icknield Way, a mile south of Ashwell Station, between Baldock and Royston, Herts. The whole distance is full of antiquities and of still undiscovered field-works.

O.G.S.C.

NATIVE CUSTOMS

Professor PAOLO MARTÍNEZ DEL RÍO, Professor of History in the National University of Mexico, writes :—

‘ With reference to the note which appeared on page 356 of the current issue of “ ANTIQUITY ” it may be of interest to point out that the custom of affixing horns to trees is not unknown in this country. Our old gardener on the Hacienda de Santa Catalina, in the State of Durango, Northern Mexico, would invariably place a ram’s horn on some convenient fork in order to protect the half-dozen stunted pines and peach trees, constituting what we proudly called the “ orchard ” of that arid place, from the evil influences of eclipses, as he often explained to me. Luis Maldonado was largely of native blood, and I rather suspect that he inherited this custom from his Indian ancestors.

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' Although I fear that I am almost in complete disagreement with Sir Grafton Elliot Smith and the members of his school, I must confess that I have often been struck by the similarity of certain customs prevalent amongst our natives and also on the Himalayan borderlands and in Tibet—*e.g.* the habit of sticking pieces of cloth over the temples as a cure for head-aches. They are called "Chiqueadores", and consist of small black disks: sometimes a leaf of a plant is used instead. The custom has almost entirely vanished in the course of the last few years but no self-respecting maid-servant omitted it say thirty or thirty-five years ago. I think that it has hitherto escaped notice on the part of anthropologists and it may accordingly not be out of place to draw attention to it. I offer no explanation'.

HEMBURY FORT

The Devon Archaeological Exploration Society with the collaboration of the Museum Authorities proposes to place on view in the Exeter Museum an exhibition of all the finds from their excavations at Hembury Fort. The exhibition will open on Saturday, 21 March at 3 p.m., when Miss D. M. Liddell, F.S.A., will summarize the results of the five seasons' work on the site and will describe and explain the exhibits, which will remain on view until 14 April. The identification of the imported neolithic pottery found at Hembury as identical with examples from Chassey and Fort Harrouard has further increased the importance of the Hembury site, and it is thought that archaeologists from further afield may be glad to know of this, the first, opportunity of seeing this considerable collection displayed as a whole.

THE GOLD HELMET OF DRAJNA, RUMANIA

In 1929 a peasant found in the Drajna hills, district of Prahova, Rumania, the magnificent gold helmet illustrated (PLATES V-VI). The ornament of this helmet is obviously akin to a South Russian style. The grooved cones of the upper portion suggest an imitation in metal of the astrakhan cap still characteristic of the steppe lands.

The only published account consists of five lines in the Catalogue (p. 28) of the Rumanian section of the Brussels Exhibition, 1935, from which the illustrations here given have been reproduced.

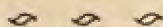
Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

With reference to the *hoga* of Cutteslowe, apparently a chambered long barrow used as a 'den of thieves' in the Middle Ages (see *ANTIQUITY* 1935, IX, 96), Mr J. N. L. Myres writes calling attention to a similar use of an early mound by St. Guthlac. The very early life of this saint says :—' *Erat itaque in predicta insula tumulus agrestibus glebis coacervatus quem olim avari solitudinis frequentatores lucri gratia illic acquirendi scindebant defodientes, in cuius latere velut cisterna inesse videbatur, in quo vir beate memorie Guthlac desuper imposito tugurio habitare coepit*'. (Felix, *Vita S. Guthlaci* : W. de G. Birch, *Memorials of S. Guthlac, Wisbech*, 1881, §xix). The site is known and marked on the Ordnance Map (Lincs. 148 sw) ; it is that called Anchor Hill, close to Crowland. There was a later medieval chapel on the site, but this and anything else that may have been there was removed by a farmer in 1866 ; see *Journ. Brit. Arch. Assoc.* xxxv, 132.



An International Numismatic Congress will be held in London 30 June to 3 July, 1936. There are six sections. Synopses of papers proposed should reach the Secretary (c/o Royal Numismatic Society, 22 Russell Square, London, W.C.1) before 31 March : time-limit, a quarter of an hour. The Proceedings will be published as a special number of the *Numismatic Chronicle*, which each member of the Congress will receive (with other privileges) for his subscription of one guinea (21s). Membership of the Congress, we understand, is open to all interested in the subject of coins.



Arising out of Mr Frank Stevens's note on primitive fire-making in our last number (December, pp. 479-81). a correspondent writes :—
'It is still possible that the regular use of steel and flint has not yet died

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out even in Great Britain, in some of the remote cottages of the Welsh hills or Scottish islands. In my youth there was an old sailor in my native village of Solva, Pembrokeshire, who regularly lit his pipe on sunny days by means of a magnifying-glass, and on cloudy days by the help of flint and steel. The flint was a lump about as big as a fist and the steel was lyre-shaped.

'I can't remember when he died, but it was not earlier than the eighteen-nineties. Somewhere about 1895 I went to a farmhouse near Solva to ask for a match to light some furze for the purpose of smoking out a ferret who refused to come out of a rabbit-hole; but I was told "we never keep any matches". The fire of culm (a mixture of small anthracite coal and clay) was never allowed to go out from one year's end to another'.



The necessity of clear expression is fundamental in science. Most verbal obscurities originate in mental fog. Jargon is often a cloak for ignorance or indecision. As Sir George Macdonald said on a recent occasion (and there is no greater master of lucid expression): 'Of all people in the world archaeologists have least reason to be ashamed of calling a spade a spade'.



Mr Alexander T. Curle (who at the time of writing was a Political Officer in Somaliland) writes (30 October 1935) in reply to the Editors' request for some account of his discoveries:—

'I have investigated the sites of some twenty towns in Somaliland and Abyssinia and have air and other photographs of many of them. I have also had the majority put on the map as I was working with Lt.-Colonel Clifford, R.E., on the Boundary Commission.

'Coin-finds indicate a date late in the 15th century, and with the help of various early books of travel and the Chronicles of Ethiopia, I can more or less place the towns as belonging to the period of Moslem prosperity in this region early in the 16th century, in fact the time of the Mohamedan invasion of Ethiopia.

'Relics include Celadon ware and a very mixed collection of glazes, Egyptian, Arab, etc., coins of Kait Bey Sultan of Egypt, quantities of fragments of glass vessels, spindle-whorls and stone plates of steatite, all indicating a very much more cultured people than now live here. Remains of mosques exist in every case'.

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We hope in due course to tell our readers more about the neglected and almost unknown antiquities of this region.



From Somaliland to South Arabia and the Hadramaut is not a far flight. We reproduce air-photographs (PLATES VII-VIII, p. 97) taken somewhere there on 24 August 1925. The castle is called South Kudiwan, and occupies the end of a spur. The castle itself consists, as may be seen, of rectangular rooms within a round-bastioned wall (absent on the precipitous side); a bastioned curtain-wall obstructs access along the steep slopes on either side, between precipices. We are indebted to Mr A. S. Tritton for the following brief comments:—

The valley shown in these pictures is very like those shown in *Hadramaut, some of its mysteries unveiled*, by van der Meulen and von Wissmann, pp. 73, 88. The ruins might be of any date. A modern fort had double walls with rubble filling. (*Land of Uz*, by Wyman Bury, p. 26).

Castles, which belong to the great age of south Arabian civilization, are built of worked stone. That of Dhu Marmar is built on an isolated rock with the walls clinging to the very edge of the cliff. (*Vorislamische Altertümer*, Rathjens and von Wissmann, pp. 137ff.) At Naqab al-Hajar the walls have a distinct batter, as have the towers here. There is no sign of one of the round cisterns so characteristic of the Himyaritic age.



The regional names of England have not been studied as thoroughly as some of our place-names. Who was the inventor of such names as the Vale of the White Horse? Some, like the Pennine Chain, are certainly of literary origin; others, like Inkpen Beacon, are inventions of the Ordnance Surveyors. Here is an extract which takes some of them back into the 16th century (Harrison of Radwinter: *Description of England*, ed. F. J. Furnivall, 1878, p. 140):—

‘I might here intreat of the famous vallies in England, of which one is called the vale of White Horsse, another of Eouesham [commonlie taken for the granarie of Worcestershire], the third of Ailesbirie that goeth by Tame, the rootes of Chilterne hills, to Donstable, Newport panell, Stonie Stratford, Buckingham, Birstane parke, etc. Likewise of the fourth of Whitehart or Blackemoore in Dorsetshire. [The fift

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of Ringdale or Renidale, corruptlie called Kingtaile, that lieth (as mine author saith) vpon the edge of Essex and Cambridgeshire], and also the Marshwood vale : but for so much as I know not well their seuerall limits, I giue ouer to go anie further in their description '.

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During the last decade great progress has been made in England in the identification and excavation of those defended villages called, in the old style, ' camps '. We have identified a well-defined group of neolithic camps with interrupted ditches, and amongst those of the Iron Age it has been possible to distinguish more than one variety (see Dr. Cecil Curwen on ' Neolithic Camps ', *ANTIQUITY*, 1930, IV, 22-54, and Mr Christopher Hawkes on those of the Iron Age, *ib. id.* 1931, V, 60-97).

Geographical conditions suggest that similar structures of both epochs should exist, and be capable of identification and classification, in France. It does not appear, however, that this has been achieved so far. ' In the present state of our knowledge ', says Commandant Octobon, ' we can only state that there are camps and enceintes almost everywhere, that they belong to all periods from the end of the neolithic (perhaps even from the middle neolithic), and that there seems to be no gauge that can be applied [to distinguish] those of one period from those of another until we reach the Gallo-Roman period '. (*Bull. Soc. Préh. Franc.* June 1935, XXXII, 310-11). Has the writer never heard of such gauges as the spade, the potsherd and the air-camera ?

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✓ The excavations conducted for the Trustees of the British Museum by Mr M. E. Mallowan at Chagar Bazar in North Syria have produced a collection of small antiquities from the various strata uncovered, ranging from wares and copper implements of the al 'Ubaid and Tel Halaf periods (3000 B.C.) down. Mr Mallowan has presented a number of objects of the Roman period found in the same neighbourhood.

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We hope this year to publish an article by Mr Mallowan on the painted pottery of the Syrian-Iraqi region. So many important additions to knowledge have been made in the last few years that

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archaeologists who do not specialize in this region will probably be glad to know the general significance of such terms as those used in the above paragraph. It may be added that some of the earliest painted pots (of the Tell Halaf group) are also some of the most beautiful, in their simple style, ever constructed. Excellent colour-plates of some found by Mr Mallowan at Arpachiyah are reproduced in his monograph on the excavations he conducted there (see *Iraq* April 1935, vol. II, part I, which is entirely devoted to his report).



It seems that defensive constructions are not peculiar to man, if we are to believe a writer in the *Daily Telegraph*, 16 November 1935.

Moose in winter time often make what are known as 'yards'. They travel to and fro trampling down the snow, and all round the soft untrodden snow forms a kind of rampart. Here they can remain safe from the wolves, which are their chief enemies. When the snow is soft the moose is more than a match for the wolf, but if the wolf can run along on hard snow a band will bring down even a powerful bull.



Mr R. J. Forbes writes saying that he is willing to give away copies (so far as available) of his 'Geschichte des Bitumens' (reviewed in *ANTIQUITY*, December 1935, IX, 494) to any readers of this notice who may care to write to him for them (Haringvlietstraat 11, Amsterdam [Zuid]). He still has some copies in German, French and English; and the booklet is not available at booksellers.



Our old friend Bill Stumps has been busy again in Scotland, this time in Fife, where he has successfully planted a nondescript stone object on a local paper, having previously carved on it the date (A.D. 1016) in Arabic numerals! (*Bulletin and Scots Pictorial*, 24 January).



A Roman cemetery is being excavated between St. Stephen's church and the Roman town of Verulamium, by Dr Norman Barry, on behalf of the St. Albans and Hertfordshire Archaeological Society. (*The Times*, 24 January).

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A carved stone panel (a temple-metope) has been found near Paestum in Southern Italy. Its interest is twofold ; it is the first example of 'primitive' Greek sculpture (of Peloponnesian origin) to be found in Italy ; and it was evidently completed by painting. The date is 6th century B.C. (*Manchester Guardian*, 2 December, 1935, illus.)



Three images of thin hammered bronze plates, joined together with short pins (predecessors of cast bronze statues), have been found in Eastern Crete. Their importance in the history of Greek sculpture will be obvious. Two represent a goddess and a boy-god. Describing the persistence of the native cult of the Mother and Son in Crete, Sir Arthur Evans says :—' It was really part and parcel of religious conceptions at home in that older east Mediterranean world of which Minoan Crete had been a forepost'. He further reminds us that according to St. Jerome, Thammuz had been bewailed in the holy grove of Bethlehem, and that ' the traditions that centre in the neighbouring Cave of the Nativity display, even in detail, truly startling correspondences with those of ancient Crete '. (*The Times* 20 November 1935). In a subsequent communication (*The Times*, 7 December 1935) Sir Arthur publishes an illustration of the statue of the goddess, which he ascribes to the 8th century.



It is reported in the press that air-photographs of Alesia, where Caesar besieged Vercingetorix, have revealed Roman camps. This is highly probable, and indeed the suggestion that air-photographs should be taken there was made many years ago by the present writer, in a letter to a French colleague. But the statement (in *The Star*, 6 November) that ' Caesar left a detailed report of the battle [of Alesia], with maps showing the hills, valleys and streams ' suggests confusion with a later potentate who was also interested in the site.



Interesting results have been obtained by the Committee on Sumerian Copper (British Association, Section H). At Ur, a single object of the Al 'Ubaid period is of nearly pure copper ; of eleven objects from the Royal Cemetery, nine are of bronze, while two contain only

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small proportions of tin. While both copper and bronze occur during the Sumerian period, objects of the later Sargonid period are either of copper, or contain only a small proportion of tin. (*Nature*, 2 Nov. 1935).



From remains of thousands of fragments of the shells of hackberry seeds found in a layer several inches thick in the Chou-kou-tien cave near Peking, it would appear that Peking man (*Sinanthropus*) supplemented his meat diet, provided by game animals, by vegetable food. These seeds, smaller than peas, were brought to the cave by human agency, and afford the earliest known example of a vegetable food used by primitive man (*Nature*, 12 October 1935). A recent examination of the skeletal remains suggests ' that *Sinanthropus* takes his place in the direct line leading to recent man, and that among recent races the Mongolian group has the closest affinity to Peking Man ' (*Nature*, 11 January 1935).



Excavations are to be undertaken shortly at the important hill-fort of Castle Dore, near Fowey, Cornwall. The site is associated with the Dark Ages and with the King Mark of Legend, and the work will be followed with interest. The position is one of great geographical significance, near the southern terminus of an isthmus road used by St. Sampson in the 6th century, and probably also in remote prehistoric times. We cordially commend the project (with which we have been associated personally) to all concerned, mentioning also the address of the Hon. Treasurer (Mr W. E. Grenfell, Royal Institution of Cornwall, Truro). The direction of the work will be in the competent hands of Mr C. A. Raleigh Radford, F.S.A., acting on behalf of the Cornish Excavations Committee, and will begin in April.



In a recent article (*ANTIQUITY* 1935, IX, 287) we stated that the spelling Crunzian did not occur on the Ordnance Maps. We now find that this was the spelling used on the 6 inch map of 1854 ; and that it was changed to Crunzie on the edition of 1908. Dr A. O. Anderson's remark, quoted there, was therefore perfectly correct, and we are sorry that we cast doubts upon it. Readers will remember that Dr Anderson suggested that Crunzie might be the modern form of Cair Gunnion (or whatever the exact ancient form may have been).

Recent Books and Articles, and Books Received

Aspects of Sumerian civilization during the third dynasty of Ur, with evidence from tablets in the John Rylands Library, by the Reverend T. Fish. *Bull. John Rylands Library, Manchester*, January 1935, XIX, 90-101.

Valuable first-hand gleanings.

On the 'Wodan-monster' or the 'dragon' series of the Anglo-Saxon sceattas, by Colonel N. T. Belaiew. *Seminarium Kondakovianum*, 1935, VII, 169-186 (Kondakov Institute, Prague).

Stamped and inscribed objects from Seleucia on the Tigris, by Robert Harbold McDowell. Ann Arbor; Univ. of Michigan Press, 1935. \$3.50.

The stamped amphora handles found in the American excavations in the Athenian Agora 1931-2: a catalogue treated as a chronological study, by Virginia Grace. Harvard Univ. Press, 1934. Price not stated.

The conquest of Kish under Agga, by Gilgamesh, by the Rev. T. Fish. *Bull. John Rylands Library, Manchester*, July 1935, XIX, 362-72.

'The fifth king of this dynasty [the First Dynasty of Erech] was Gilgamesh, the hero of the great Epic . . . This same Gilgamesh is the hero of the struggle recorded on the Rylands Tablet. The main item of news is that he was a contemporary of [sic] Agga the last king of Kish I, under whom rulership ceased. It has long been suspected that Kish I and Erech I were in part contemporary. Here we have a tradition in writing that the fifth king of Erech I was contemporary with the last of Kish I. And that is news'.

Stonehenge and its date, by R. H. Cunnington. Methuen, 1935. 5s.

This book was adequately reviewed in *Antiquaries Journal*, July 1935.

Münzhandlung Basel: Vente publique no. 4: Monnaies Grecques. 1 October 1935.

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Coins from Seleucia on the Tigris, by R. H. McDowell. Univ. of Michigan Press (Humanistic Series, vol. 37) Ann Arbor, 1935. \$3.50.

Nieuwe Drentsche Volksalmanak 1935 (van Gorcum and Comp. Aan den Brink, Assen); article by Dr A. E. van Giffen on 'Oudheidkundige aantukeningen over Drentsche vondsten', in Dutch. 56 pages, 11 illus.

Der Kölner Münzschatzfund vom Jahre 1909, by Wilhelm Reusch.

Brief Guide to the National Museums and Galleries of London. H.M. Stationery Office, 1935. Pp. 106 and many illustrations. 6d.

This most useful and excellently produced little guide-book can be purchased through any bookseller or sale office of the Stationery Office at the modest price of sixpence. It should fill a long felt want in providing a general bird's-eye view of the various collections for visitors who have neither the time nor the inclination to study individual guides and catalogues, and should it find favour with the public it will be revised each year. We gladly commend it to our readers.

Nineteen Echoes and a Song. Translations mainly from the Greek and Latin by H. M. Dymock, G. M. Lee, W. D. H. Moore, H. K. St. J. Sanderson and Nolan Wood, with an introductory poem by Denis Botterill. G. M. Lee. Trinity College, Cambridge, 1935. pp. 20. 1s 6d.

It is unusual for a book of poems to be submitted for review in *ANTIQUITY*, and anything more than a short notice here would be out of place. Suffice it to say that the translations make pleasant reading; and if one does feel a little uneasy about Mr Dymock's preference for the harsh-sounding and obsolete 'leman' to interpret the 'puella' of Catullus in Lesbia's Sparrow dirge, there is always reassurance in the strength of Mr Sanderson's admirable version of a little-known poem by Alcman the Lydian.

R.F.J.

The Traditional Dance, by Violet Alford and Rodney Gallop. Methuen, 1935. pp. 204 and 14 illustrations. 6s.

This small book describes in a popular way the many varieties of folk-dance to be found in Europe, and its authors lay special emphasis on the form and composition of the dance while saying comparatively little about its anthropological issues. It is definitely a book for those interested in folk-dancing for its own sake. 'A fine sight it is', say the authors, 'to see a circle of grave men pacing slowly, then shooting up into the air seven times over as though they could never stop'. It may be, but for our own part if we had to see anything of that sort we should prefer the stout soldier from Missolonghi who swallowed a pint of beer from a mug held by his lips alone, while both his thumbs clicked like castanets in the air and he spun round and round on his feet.

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The Tressé Iron Age megalithic monument, etc., by V. C. C. Collum. Oxford, 1935. pp. 124. 10s 6d.

We are surprised that the Oxford University Press should sponsor such a shocking piece of work as this. As it has already been dealt with elsewhere we do not propose to review it here.

In Memoria Lui Vasile Pârvan. Essays by various members of the Roumanian School at Rome. Bucharest, 1934. pp. 326, plates and illus. in text. Price not stated.

This volume consists of essays on archaeological subjects, published as a memorial to Vasile Pârvan (1882-1927), founder and first Director of the Roumanian School at Rome, by members of the School. The articles range over a wide field: Maria Holban discusses the authorship of Marguerite de Valois' Book of Hours and G. Oprea makes a study of an Adoration of the Magi by Bonifazio Veronese, while V. Bancilă writes on Augustine's Letter xxvi to Licentius. Prehistoric archaeology is represented by an illustrated article by Hortensia Dumitrescu on the pottery from a site at Hodoristea, which includes painted and incised wares equated with Cucuteni B, and a description, by Vladimir Dumitrescu, of an imported bowl of Delian ware of the second century B.C. found near Fundeni, southeast of Bucharest. The only contribution in English is by the Director of the American Academy in Rome and takes the form of an impassioned apostrophe to the shade of the departed.

S.P.

Books Received

A HISTORY OF CARMARTHENSHIRE. Edited for the London Carmarthenshire Society by Sir John E. Lloyd. Vol. 1. From Prehistoric Times to the Act of Union (1536). Cardiff: William Lewis (printers). 1935. pp. xix, 375, maps and illustrations.

ENGLISH FABRIC, by F. J. Harvey Darton. George Newnes, 1935. pp. 331, and 5 plates. 10s 6d.

BIBLE AND SPADE: an introduction to Biblical Archaeology, by Stephen L. Caiger. Oxford University Press, 1936. pp. xii, 218, with illustrations. 5s.

CALENDAR OF ANCIENT CORRESPONDENCE CONCERNING WALES, by J. Goronwy Edwards. University Press Board, Cardiff, 1935. pp. lvii, 302. 15s.

ARCHAEOLOGICAL HISTORY OF IRAN, by Ernst E. Herzfeld. The British Academy. Oxford University Press, 1935. pp. xii, 112, 20 plates and 13 figures. 7s 6d.

Reviews

ROMAN GAUL, THE OBJECTS OF TRADE. By LOUIS C. WEST. Oxford : Basil Blackwell, 1935. pp. xi, 191. 7s 6d.

In this volume Dr West continues his statistical survey of the Roman provinces. The chapters deal with the means of communication in Gaul (roads and rivers), the various articles of production, the condition of the workmen responsible for them, and finally with the imports needed to assure the balance of trade. Each chapter discusses generally the significance of the statistical material appended to it: the statistical tables tell us in the chapters relating to Commodity Production (to take an example) the place of origin of the commodity, the place where it has been found or is reported to have gone in the way of trade, and the bibliographical reference. The bibliography is full, though not exhaustive: there is much important material that might have been drawn from out-of-the-way French *Sociétés d'Émulation*. Moreover the exclusion of the German provinces is not altogether happy: in the section on Pottery Dr West prowls uneasily around Heiligenberg and Rheinzabern, unable to bring them into his survey; and one does not find it easy to appreciate the commercial significance of Trier when the districts that depended on it for their commerce are excluded.

From these remarks the intending purchaser will, I hope, understand what he has a right to demand from this book. The general reader ought to feel confident that the statistics are set in a framework that is historically reliable: the specialist (who can look after himself with a distorted framework) expects a high standard of completeness and a still higher standard of accuracy. This book must, in fact, be judged as we should judge a dictionary. Admiration is due to the very heavy labour which Dr West has expended single-handed upon its compilation, but admiration is irrelevant. There is no middle course for a book like this: it is either excellent or it was better unwritten. And I am afraid that this is not an excellent book.

On p. 2 we find these words: 'In the settlement of the Roman provinces, it seems clear that Augustus wished to make a second Egypt of the three Gauls. . . . Self-government was wholly lacking; the officials, as in the corresponding units in Egypt, being sent down from above. Naturally there was no general assembly, no decuriones or other municipal offices as in Italy'. On this curious assertion, which is quite unjustifiable and inconsistent with a mass of evidence, Dr West gives the following note: 'This comparison with Egypt was apparently first made by Rostovtzeff. It was repeated by Kornemann in *Klio*, 1911, 390'. In Dr West's next footnote there is a reference to Rostovtzeff, *Social and Economic History*, p. 501, n. 10. To p. 501, n. 10 I therefore turn and find these words: 'According to Hirschfeld, the reform of Augustus legalized the ancient cityless condition of the Gallic tribes. This statement of Hirschfeld led Kornemann to an utterly misleading parallel with Egypt' [italics mine]. Two pages later we are told that Narbo was founded by the Gracchi: both Gracchi were dead by the time of its foundation; and Strabo does not say that in the time of Augustus Narbo

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had a smaller population than Nîmes, which would be curious in face of the statement (no authority quoted but Pomponius Mela, II, 5, 75 may be meant) that by the time of Tiberius, Narbo was the largest city in the country. Strabo says that in its political position (κατὰ τὸ πολιτικόν) Nîmes with its territorium was superior to Narbo. On p. 23 we are told that among the Morini the land occupied by plane-trees was exempt from the land-tax; Pliny *N.H.*, XII, 6, cited by Dr West, says exactly the opposite.

In matters of detail there are too many mistakes and omissions. It is stated on p. 22, notes 25 a and b, that the Great St. Bernard was disused after Constantine and the Little St. Bernard in the third century: no authorities are quoted, which is just as well, for both statements are false; the passes have yielded coins—the former to Arcadius and Honorius, the latter to Theodosius I (*Notizie degli Scavi*, 1894, p. 44; 1924, p. 392). In the same chapter we are told (p. 16) that Claudius built a network of roads in Brittany to serve the iron-smelters. No authority is quoted; in fact, there is just one milestone of Claudius in Brittany (*C.I.L.*, XIII, 9016) and it is not in an iron-smelting district. Again from the same chapter, there is nothing in the inscription cited (*C.I.L.*, XIII, 3105. *ib.* 3114, incidentally it has been missed), to show that the Nautae Ligerici (not Ligericii, as on p. 14) 'were limited to supplying the needs of Nantes'.

In the next chapter, which deals with Forest Products, Ausonius is misquoted (XIII, 8, not XVIII, 6); Palladius is misquoted (XII, 15, not XII, 13), while Horace, *Sat.*, I, 6, 104 and Theophanes, 351 are so badly astray that I cannot put them right. There is nothing in Sidonius, *Ep.*, VIII, 4 to show that 'woods were a necessary part of a large estate'; the passage cited to prove this from Ausonius is misquoted (*Idyll*, III, 23, not III, 1), and the most explicit reference of all, *Lex Visigothorum*, X.i. 8 & 9, is missed. In the next chapter IV, on Cultivated Plants, the statistics upon beer cite *C.I.L.*, XII, 372 without mentioning that CERVISIAM is a highly conjectural restoration of Hirschfeld; they include *C.I.L.*, XIII, 597* which has nothing to do with beer, while they miss Pliny, *N.H.*, XXII, 164, Julian in *Anth. Pal.*, IX, 368, and Gregory of Tours, *de Gloria Confessorum*, I. The chapter on Mines quotes Daubrée's article in *Revue archéologique*, 1868, twice only: thus not a few of the sites mentioned by Daubrée are omitted in the inventory; and when we find that both the references contain the same misprint (1860 for 1868) the suspicion deepens that they have been taken at second hand. Moreover Dr West knows nothing of Daubrée's still more important article in *Revue archéologique*, 1881, and has missed the fine collection of iron ingots in the Metz museum, studied by T. Welter in *Jahresbuch für Lothringisches Altertumskunde*, 1906.

I have taken a selection, not, I believe, an unfair selection, from the material contained in this book. I will not deny that there is much that is valuable in it, nor that very detailed research has gone to its compilation. But a book of this kind must be trustworthy, and this book is not.

C. E. STEVENS.

THE VICTORIA HISTORY OF THE COUNTY OF SUSSEX. Volume Three
Edited by L. F. SALZMAN. Published for the University of London Institute of Historical Research by the Oxford University Press, 1935. pp. xiv, 170, illus. and maps.
 42s.

After a long interval, during which it encountered many setbacks, the third volume of the Victoria History of Sussex has appeared. The earlier volumes were published in 1905 and 1907, and this third volume to some extent fills the gaps in its predecessors by

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giving an account of the Roman antiquities of the county and a history of the City of Chichester and its Cathedral.

The first part, by Mr S. E. Winbolt, deals with the Roman period. Sussex has only two major Roman sites, Pevensey and Chichester, but it has a great scatter along the coastal plain and up the river valleys of farms and houses, ironworks in the Weald, and two posting-stations on Stane Street. The first section contains a short account of the fort at Pevensey and deals more fully with the remains of the Roman period, many of them unfortunately now lost, found in and around Chichester. For the rest, there are sections on country houses, of which Sussex has several fine examples, well illustrated by plans; Roman ironworks, roads and camps; and a topographical index of finds, etc.

The early history of 'that disappointingly dark patch, Roman Chichester' causes concern to the author, but the number of pre-Conquest relics from the city is growing, and the pottery of the late 1st and early 2nd centuries is sufficiently plentiful to warrant a fair estimate of pre-Conquest fashions and contacts. The relations of the Regni (or Regnenses, as they are alternately named in this volume), with their Belgic neighbours are admittedly difficult to assess, but a glance at the pottery vessels from the cemetery will show a frequent borrowing of Belgic forms. Moreover, the presence of fine harbours so close at hand would encourage immigrants and traders from the Continent, a fact which is borne out by the finding of imported wares in the city. As to structural remains of the Roman town, the core of the surrounding walls is undoubtedly Roman, but the gates have been destroyed. No mention is made of the excavations carried out in 1931 and 1932, which indicated that the walls and earthen ramp were constructions of the 2nd century, and the bastions additions of the Saxon Shore period. Houses, and structures, such as the Temple to Neptune and Minerva, appear to have been finally destroyed during the rebuilding on the main streets in the 18th and 19th centuries of dwelling houses with deep cellars, and we now have only records of finds of tessellated pavements, etc., as shown on the plan facing p. 10.

Another Chichester problem is the dating of the series of dykes which lie on the northeast and northwest of the city. A description of these is given in a summary of a paper by Dr J. P. Williams-Freeman, but the problem can only be solved by very careful excavation.

Chichester has certainly suffered neglect at the hands of archaeologists, but the large collection of 1st and 2nd-century vessels from the Roman cemetery beyond the East Gate, excavated by Alderman Butler in 1895-6, is available for study. The list of potters' stamps in this collection given on p. 17 is incomplete, as it includes also Lollius (Vespasian-Hadrian) and Carillus (Flavian). The object on the plate facing p. 17, described as a leaden steelyard (bottom right), is of course a leaden lamp holder, with hook and swivel for suspension.

The distribution of Roman remains in the county is well illustrated by the map facing p. 2, but some of the plates are poor, and that of the casts of coins facing p. 16 is of little value, except in showing the rare Valentinian III. The fine life-size portrait-head, probably of Germanicus, found at Broadbridge near Bosham about 1855, is now generally accepted as a later importation, possibly the 'loot' of some 18th-century traveller.

The second part of the volume, dealing with the City of Chichester, opens with a brief account of the houses in the main streets, the Market cross (worthy of a better plate than that facing p. 74), St. Mary's hospital, the Grey Friars' church and the development of the city outside the walls. There follows the history of the city from Saxon

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times onwards, and every aspect of its life is fully examined. Constitutional and Parliamentary history, courts, trades and industries, and ports, and finally the ecclesiastical background, receive full attention, including a complete survey of the cathedral and precincts, and the city churches.

A record of the domestic architecture of Chichester has long been necessary, and appears at an appropriate time, when modern development is fast laying its hold on one of the most pleasant cathedral cities of southern England, and many of the old houses are being gutted for chain-stores. Particularly welcome is the account of the building of Westgate House, now the County Hall, taken from a hitherto unprinted paper by the late Garraway Rice, F.S.A. It may not be generally known that when this house was undergoing repairs in 1933-4, some of the stone quoins were found to be re-used material from another building, and included part of the chamfered spring of an arch, a corbel in the form of a human head and other architectural mouldings.

The names of Mr Walter Godfrey, F.R.I.B.A., F.S.A., and Mr J. W. Bloe, F.S.A., are a sufficient guarantee that the historical and architectural survey of the cathedral is a first-rate piece of work. It is accompanied by two excellent plans, one of them the generous gift of Mr Godfrey, and many plates. In the latter, throughout the volume, and in the line-drawings, there is room for improvement, which should be possible now that the publication of the Victoria Histories rests on a more satisfactory basis. The lack of an index to this volume is regrettable. It is true that a general index is to be published when the several volumes dealing with the Rapes are complete, but this makes it all the more necessary that the table of contents should be as full as possible, as much valuable material is now almost inaccessible.

G. M. WHITE.

WE EUROPEANS: a survey of 'Racial' Problems. By J. S. HUXLEY, A. C. HADDON and A. M. CARR-SAUNDERS. *Jonathan Cape*, 1935. pp. 299. 8s 6d.

The object of the three eminent authors of *We Europeans* is to confront with scientific facts what they term 'the vast pseudo-science of racial biology . . . which serves to justify political ambition, economic ends, social grudges, class prejudices'. But since it is quite useless (or so the psychologists tell us) to confront passion with reason, we cannot hope that a single anti-Semite, or a single prater of the superiority of the Anglo-Saxon 'race' will be the better for this book. The honest student of public affairs, however, will find in it an admirable and lucid summary of the most recent findings of the biologists and the anthropologists upon ethnic problems, while it will prove salutary reading for the average archaeologist, geographer and historian. The historians have, of course, played a major part in propagating the myth of an 'Aryan race', and it is amusing to note also how strongly the exponents of modern German racial doctrine lean upon the historian Tacitus. Should they care to consult the famous Renaissance scholar, Johannes Goropius Becanus, they will find convincing proof that German was spoken in the Garden of Eden!

The scientific reader will probably find Dr Huxley's chapters the most useful, for he will already be acquainted with Dr Haddon's *Races of Mankind* which is here epitomized. The discussion of fallacies and pitfalls suggests that the anthropologists have still to put their own house in order. In anthropometric work (as until recently in meteorology) the use of arithmetical averages and means in lieu of frequency curves and data of variability, has produced results that are meaningless. The present reviewer would also stigmatize as fallacious the type of map which faces p. 201. Purporting to

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show 'ethnic movements' it gives without distinction the 'tracks of migrating and raiding peoples', emphasizing with heavy lines the raids of the Huns and the conquests of the Arabs. The lay reader may be pardoned if he concludes that the Greeks are of Hunnish descent, and that in a Yorkshireman he sees the last of the Picts!

Four maps contributed by Professor Hogben, showing world-distribution of Blood Groups, Stature, and Cephalic Index, are deeply interesting; but the geographer will be concerned to know what principle has governed the placing and spacing of the symbols, and whether there is a constant relation between the number of individuals examined and the total population of the area.

The perusal of a volume such as this should convince us of the need for a much more deliberately organized liaison between the sciences than seems possible at present. Facing p. 54 is a diagram of a character now becoming familiar: a correlation of human types, archaeological periods, and quaternary climates. Now, the climates are dangerously over-schematized. There is no reason to expect that the four classical maxima in the Alps should have their parallels in northwest Europe, or indeed that the Alpine and northwestern glaciations were contemporaneous. A major fallacy of current historical climatology is the common assumption of similar and simultaneous rather than complementary changes, and archaeologists and anthropologists should alike 'gang warily'.

We Europeans bears, up to a point, the stamp of over-hasty and piecemeal writing and illustration (one of the maps criticized above is borrowed from Mr H. G. Wells' popular *Outline of World History*). An excuse for this is to be found in its *ad hoc* character, and, as it happens, the fact that certain chapters take the form of self-contained essays allowed readers of *ANTIQUITY* to enjoy one of them (Chapter IX) as an article in this Journal (Vol. ix, p. 261) before the complete work was issued from the press. Were it in our power to draw up a compulsory reading-list for politicians, this book would certainly be included, and it should be placed in the hands of the young publicists of the future who are now sharpening their wits in school and college debating societies.
E.G.R.T.

CAROLINGIAN ART. By ROGER HINKS. *Sidgwick and Jackson*, 1935. pp. 224 and 12 plates. 15s.

The dust-cover of this book informs us that it is the first in any language devoted to Carolingian Art as a whole. This statement is to a certain extent negated by the fact that the book does not undertake and does not profess to undertake any survey of Carolingian architecture. Its purview is confined to the arts of illumination, ivory-carving and metal-work. The book is furthermore an art-criticism and not an archaeological handbook and anybody seeking for exact information as to the numbers, details and precise description of the surviving examples of the age, will not find it here.

What Mr Hinks has given us is a treatise on the origins, composition and development of the format of Carolingian art and ornament and particularly the blending of northern and Mediterranean ideals and methods which was to form the basis of medieval art. In pursuit of his subject the author goes far back into antiquity and the first half of the book is devoted entirely to this preliminary section of the subject. The author's thesis is of the highest interest and whether or not one agrees with his conclusions, he has produced a well-reasoned argument, couched in a language which is comparatively free from art-jargon and thus reasonably intelligible to the ordinary reader.

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The second half of the book is devoted to the application of these premises to the chief surviving examples of Carolingian pictorial and decorative art. The scheme is closely argued and on the whole convincing, though such phenomena as the recurring Baroque and other resurgent mysteries owe their existence, perhaps, largely to the eye of the beholder. The author furthermore is, we suspect, too deeply intrigued with modern German theorists who are apt to involve themselves and their readers in a complicated web of action and reaction which is quite incapable of proof. The occasional introduction, too, of analogies in modern and ultra-modern art is an unnecessary distraction and introduces a controversial element which is far better absent.

We have noticed two misprints—Valentinian II on p. 130 and 829 for 859 on p. 191.

The book is well produced, and the illustrations, though not too numerous, are excellent. A.W.C.

THE PLACE-NAMES OF ESSEX. By P. H. REANEY, under the General Editorship of A. MAWER and F. M. STENTON. *Cambridge University Press*, 1935. pp. LXII, 698. 25s.

This is the twelfth volume of the publications of the English Place-Name Society, and in scope and arrangement follows the same general lines as previous volumes. After an interesting introductory note, which contains a brief survey of the place-names of Essex, and a number of conclusions to be drawn from a study of them, Dr Reaney deals exhaustively first with the river-, creek-, forest-, and road-names of the county and then with the place-names by hundreds and by parishes. Field and minor names are considered in a separate section. There are also notes on the elements found in Essex place-names and their distribution; on personal names compounded in place-names; on feudal and manorial names; and on Celtic, Scandinavian and French names and their distribution.

As Dr Reaney points out, archaeology and tradition have done little to dispel the obscurity which enshrouds Saxon Essex. So few finds have been made that we might conclude that the settlement of the county was little advanced in Anglo-Saxon times. A study of the place-names, however, makes this view untenable. Proof of the early date of settlement of Essex is afforded by the frequency of names in *-ingas* and *-ingaham*, generally admitted to be evidence of antiquity; by the number of names which are akin to those of places in Kent and Sussex known to have been settled early; by the existence of such names as Thundersley and Wodnesfold, which obviously date from a time of heathen worship; and by the frequency of names containing a simple personal name, which may usually be regarded as early, since personal names of the simpler type were becoming unfashionable by the ninth century. Essex, in fact, affords an excellent instance of the way in which place-name study can aid and supplement archaeology.*

The maps given to illustrate the distribution of some of the more common place-name elements are a useful feature. Amongst other things, they show the demarcation between areas in which earlier names, such as those in *-ingas* and *ingaham* are frequent, and areas which contain a preponderance of later woodland names, in *-hey* and *-ley*. It is evident that the early settlers tended to avoid the forests, and when they did settle in them it was near rivers or on the Roman roads.

In Essex there is little evidence of Celtic survival, except in the far northwest border, which was probably the last district to be occupied by the Saxons. There is

* See also the remarks on the same subject in our last number, December 1935, pp. 455 ff.

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more evidence of Scandinavian influence but it is far less important than Norman influence, which is more strongly marked than in any other county, and is responsible for such picturesque names as Tolleshunt d'Arcy, Beauchamp Roding and Hatfield Peverel. The number of parish and manorial names which preserve the names of Norman barons bear testimony to the intensive feudalization of the county.

In its accuracy, completeness, and painstaking scholarship, *THE PLACE-NAMES OF ESSEX* faithfully maintains the high standard which we have learnt to expect of the publications of the Place-Name Society, and it forms a substantial advance towards the completion of the national place-name survey.

FRANK W. JESSUP.

THE RE-EXCAVATION OF THE DÉHUS CHAMBERED MOUND AT PARADIS, VALE, GUERNSEY : together with studies of the pottery and human remains recovered in this and the earlier excavations, and an investigation of the cult responsible for megalithic burials and for the symbols found in these tombs. By V. C. C. COLLUM. pp. 189, 28 plates and plan.

This long report describes with much detail an excavation and restoration undertaken in 1932 by Miss Collum, at the charge of Sir Robert Mond and by invitation of the Ancient Monuments Committee of the States of Guernsey, in one of the most notable chambered burial-mounds in the Channel Islands. As neither the title page nor the cover set out particulars of publication, we are quite unable to tell would-be readers where to obtain the report and the cost of it; not even the printer's name is there to provide a clue, and the date of publication is likewise not stated.*

The history of the Déhus has been one of constant misfortune beginning when the burial-chamber was plundered shortly after its erection. It received an unhandy evisceration at the hands of the Lukis family early in the nineteenth century, an undertaking so confusedly recorded as to be of little use to modern archaeologists; later in that century it suffered a 'restoration', and then in 1916 it was trenched again, this time by the Société Jersiaise for the purpose of a demonstration. But this is not all. The mound has been damaged further by the people of Vale so that no part of the original outline remains. A stone goat-house was built on it, and the entire site has been used alternately as a rubbish dump and a convenient stone quarry. May we not very well ask if such a monument is indeed worthy of re-excavation; and in any case we cannot but have an uneasy feeling that the early depredations will have effaced much evidence of value and quite likely have distorted any that remains. Can we, in brief, be assured that the authenticity of stratification has not been impaired? Miss Collum says that we can.

Miss Collum summarizes her conclusions under eighteen headings, the most important of which propounds the altogether novel dating of 300 B.C.-300 A.D. for the Déhus, and incidentally for the rest of the European megalithic chambered mounds. The chief discovery responsible for this startling deduction was made under a cavity which Miss Collum suggests was the site of a side-chamber; here, under a disturbed filling, was a yellow soil, said to be undisturbed, in which the western prop of one of the large chambers had been sunk. 'Embedded here,' to use Miss Collum's own words, 'to a depth of 15 cms. below the natural soil, into which the lowest course of

* We have ascertained that this is an offprint from the *Transactions of La Société Guernesiaise* and can be obtained from the Hon. Librarian, the Guille-Allés Library, Guernsey for 2s 6d (by post 2s 10d). It was published in 1934. Editor.

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the "placed" tumulus stones had been rammed, we found several scraps of black sodden material . . . when they had become dry, they turned out to be sherds of black Gaulish pottery'. These sodden sherds, the excavator claims, were *in situ*; they 'had been trodden in to the excavated clay of the site when the original builders cut into the slope and were setting up the props of the monument'. Earlier explorations, she says, had not disturbed this natural sub-soil, but in view of the fact that Lukis had certainly dug into it in the main chamber, and in the total absence of any explanatory sections showing the exact position of the sherds and their relation to the various deposits in the monument, we are not convinced by Miss Collum's claim.

An obvious corollary, if the claim be granted, is that all of the Gaulish pottery found in the chambers by Lukis is contemporary with the monument; how then are we to explain such pottery as the tulip beakers found by Lukis in the same place? And what are we to say about the tanged bronze dagger, and the polished serpentine axe-head? Miss Collum will have to produce unmistakable evidence from sites which have not been meddled with, before we are prepared to throw away our conceptions of the chronology of such objects as tulip beakers, stone axes, flat bronze daggers, and barbed and tanged arrow-heads, all of which have been found within megalithic chambered tombs. Incidentally, is it really true that archaeologists are slow to realize 'that the double conjunction of hand-turned and wheel-made pottery, of flint implements and objects made of metal, is not incompatible with contemporaneousness'—we thought that bogey had been laid long ago.

A loose plan enables the reader to follow the text closely. Many photographs show the excavation in progress, but neither their merit nor their number offset the omission of diagrammatic sections. With one notable exception, none of the pottery is illustrated; it is true that only eleven sherds were found, but in view of the excavator's revolutionary conclusions based upon them, the reader should have an opportunity of studying these few sherds for himself.

The noteworthy find which is well described and illustrated is a small four-sided flask discovered by the foreman during the restoration of a broken capstone, and in Miss Collum's absence. Its fabric is described as identical with that of other sherds from American and Channel Islands megaliths. Its form alone is unusual, and it is compared with two clearly related flasks from megalithic graves in Denmark, which by reason of their contents, 'amber and flint and stone implements that *are obvious copies of metal tools*', are classed as Neolithic by the Danish authorities. We do not think the paradox which Miss Collum emphasizes by italics would be admitted as a serious bar to a Neolithic date by the majority of archaeologists. It is a pity that the flask was not examined more critically. In passing, we noticed the omission of Professor Childe's and Mr Piggott's definitive papers dealing with Neolithic pottery from the full and careful bibliography appended to the report.

This little pot provides Miss Collum with an opportunity for the exercise of that free and familiar style which she frequently adopts:—

'Examined under the pocket microscope, that little pot bears the impress of some textile in which it was wrapped or on which it stood when the clay was still damp. That must have happened before firing; but the warp and woof of that material were coarse in comparison with two exceedingly fine threads which I found, amongst some neutral-tinted fibres, adhering to the rounded base of the pot. They were too fine to be seen by the naked eye; one was white and one red. I could find nothing so fine as they are, except the fibres of which a single linen

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thread, in a fine Irish linen handkerchief, are twisted. The possibility of any silk fibres having coming into contact with the pot since its discovery were investigated and eliminated. Hence this little pot, or "bottle" as its finder more correctly termed it, at once calls up a vivid picture of a chieftain's wife or favourite concubine going to her death with a little locally-made pot of unguents or perfumes clasped closely to the exquisitely fine material of her dress or veil—perhaps imported through Carthage or Masillia and dyed at Sidon. What modern detective story can provide a thrill to compare with that!

It is axiomatic that we cannot all write alike, and in these days of uniformity perhaps a judicious diversity should be encouraged, but for all that, we cannot pretend to admire such passages in a scientific excavation report.

Dr Cameron and Miss Tildesley find themselves unable to attribute the human remains to any exact cultural period. To those interested in primitive anatomy, their excellent and careful comparative studies are invaluable, but very wisely they point out 'the unreliability of facile attribution of date and race to scanty material such as this from Guernsey'.

The report concludes with a seventy-page appendix, the result of two years of research on the part of the author, entitled:—

'Various aspects of the Male-Female creative principle, with special reference to the Messenger as "Word" and as Guide in Ancient Oriental religion, and in the Celtic-speaking world, and their survival in Ireland, Scotland, Britain, and America'.

It amplifies Miss Collum's contention that the figure on the underside of the second capstone at Déhus is 'a symbolic representation of the Male Principal in the God-head' intended for a composite Gaulish Dispaten-Hermes, which thus, in her view, confirms the Gaulish date of the tomb.

R. F. JESSUP.

BEITRÄGE ZUR VOR- UND FRÜHGESCHICHTE BÖHMENS. By LEONHARD FRANZ (Mitt. d. deutschen Ges. d. Wissenschaften u. Künste f.d. tschechoslowakische Republik in Prag, N.F., 1). Prag, 1935. pp. 83 and XXXIV plates.

The volume contains reports of journeys and excavations undertaken by the author in the Böhmer Wald and northwestern Bohemia. The most interesting points are: (1) excavation of a rock-shelter near Krummau; abundant remains of cave hyena, woolly rhinoceros and horse (*Equus germanicus* is new to the reviewer!); a few rough implements of hornstone and claystone and some crudely worked bone tools point to Menghin's 'bone culture'. The author questions whether this site, Petershöhle and Mixnitz, all bone-culture stations, should not be referred to the Laufen oscillation rather than to the Riss-Wurm interglacial where they are usually placed; (2) a Late Bronze Age hoard and other stray finds illustrating routes through the Böhmer Wald; (3) graves and settlements of the Bylany culture which, Franz reminds us, lasted down into La Tène A times in Bohemia; (4) trial trenching of the rampart of the Radischenberg near Kaplitz. No built-wall was found but some of the granite pieces in the rampart had been melted—vitrified!—and charred logs lay above virgin soil. Franz suggests a very interesting, but quite hypothetical, reconstruction of the work as a stone rampart faced on either side with revetments of timbers, not planted in the ground (he found no post-holes) but tied together with transverse beams; (5) a rectangular 'granary' 15 m. by 7.50 m., and

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pit-dwellings of the stroke-ornamented variant of Danubian culture. In a useful survey of the climatic conditions and agricultural methods, Franz cites from Brøgger's *Sigd, ljd och smidill* (1933) the results of Curwen's well-known work on field-systems.

V. G. CHILDE.

CYPRUS: DEPARTMENT OF ANTIQUITIES. Report no. 2, 1934. *Government Printing Office, Nicosia, 1935. pp. 27, 12 plates, and plan. 4s.*

The Department of Antiquities in Cyprus is to be warmly congratulated on this report. It is a great advance in quality of publication on the meagre annual reports of earlier years, which were rarely illustrated. The Government printing office has shown the adequacy of its resources in the excellent typography, the good paper and the exceedingly clear blocks. It is high testimony to the enterprise now evident in the island.

Archaeologically the report covers a heterogeneous mass of finds—some accidental, some due to excavation—from the newly identified Neolithic period down to Byzantine times.

Mr Dikaïos' Neolithic finds at last complete the story of Cypriot prehistory—but surprisingly; for the massive white-slipped red-designed vessels of this age bear no relation at all to the wares of the Bronze Age in shape or fabric. Here, indeed, is a new and important element in Cypriot archaeology. The very extensive site of Erimi has much still to tell us.

For the Classical period the stone ashlar tomb of Pyla near Larnaca, with its apotropaic gorgoneion and attendant sphinxes, gives us a fine addition to fifth century sculpture and useful knowledge of burial customs of that neglected Cypriot period. Attic vases, a sixth-century limestone head and a really important series of Byzantine vases all help to enrich the museum, which is now rapidly attaining a position of first-rate importance among Mediterranean museums.

S. CASSON.

THROUGH THE WILDERNESS. By H. J. MASSINGHAM. *Cobden-Sanderson, 1935. pp. 316, illus. 15s.*

This book is described as 'an attempt to illustrate what is wrong with country life, and so the fundamentals of national life', in the terms of the author's own experience. But the illustrations are of Avebury, the Whiteleaf Cross and the Ridgeway, and for the rest it all boils down into the rather commonplace fact that a journalist has retired to a house in the country and has now written a book about it. Mr Massingham continues to write 'literary' books about the past, though he has never made any contribution to knowledge, and seems incapable of learning from the work of others or even presenting their results accurately before his readers. Otherwise he might have copied Grim's Ditch from my 'admirable map' (to which he refers on p. 183) and so perhaps have got it right on his own. Had he read the accompanying article (or had the eye to see them for himself) he could have learnt that none of the Berkshire Grim's Ditches has any linear connexion with those across the Thames, and that one of the former is an earthwork (a 'bivallate') of an utterly different character (and probably of a different age). He would not then have called Grim's Ditch 'the great boundary line coming from Wiltshire'. Almost every page contains at least one statement as misleading as this.

It is not altogether Mr Massingham's fault that he does these things. His heart is obviously in the right place; it is his head which is weak. But it is necessary to warn

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our readers that, for all his superficial learning, he is an untrustworthy guide. The trouble is that bad books drive out good; that for every worthless book written, several worth-while books must remain unprinted. It is the thought of this that envenoms the critic's shafts and forces him to denounce 'literary' rubbish. O.G.S.C.

RATS, LICE AND HISTORY. By HANS ZINSSER. *George Routledge*, 1935. 10s 6d.

It is claimed by the publisher that the author of this book 'throws a flood of light on history as hitherto interpreted' and 'shows incontestably that again and again disease has been the deciding factor in the history of human activities'. These claims are by no means without foundation, but it must be admitted that the book is very badly put together; one is presented with masses of undigested facts, and left to arrange them as best one may. That is not how history or biography should be written. As for the 'irresistible humour, which never degenerates into flippancy', we were able to resist many facetious remarks without difficulty.

Nevertheless, as an offset to the dullness of the normal text-books of political history, this book is welcome and valuable. It marks a stage in the advance towards that complete materialist account which will one day be written. 'What real interest can I have in the death of a Peloponnesian tyrant or the sacrifice of a young princess of Aulus', asked Beaumarchais, just before the French Revolution. But we can all be interested in the activities of a microbe which flourishes on warfare and may kill us in the next outbreak. That microbe has therefore real historical interest for us.

O.G.S.C.

ON THE INTERPRETATION AND DATING OF THE SITE OF BELO BRDO AT VINCA IN YUGOSLAVIA. By VLADIMIR J. FEWKES. *Proc. American Philosophical Society*, 1935. pp. LXXV, 651-72.

This amusing note is primarily concerned with the classic prehistoric site of Vinca, a tell on the Danube just below Belgrade. But an alternative title would be 'the vacillations of Vasic'; for the writer tabulates the various opinions held by that savant during the last 30 years; and they have changed on an average once in every three years. In 1905 Professor Vasic put the end of the occupation-period of Vinca at 'the so-called Hallstatt period'; in 1934, after nearly 30 years work there he 'supposes that the foundation of Vinca took place about the year 600 B.C.', that is to say, that it ended some time *after* the date when he thought, in 1905, that it began!! The intervening years witnessed various minor oscillations, but have produced no adequate account of the stratification of the ten metres of archaeological deposits, though Vinca represents 'the highest cultural attainment in a large area'. We are told, further, that 'there is, in reality, no thorough account of the pottery'; but Professor Vasic's field-explorations are not yet completed.

O.G.S.C.

THE ARCHAEOLOGY OF ROCHFORD HUNDRED AND SOUTH-EAST ESSEX. By WILLIAM POLLITT. *Southend-on-Sea: published by the Public Library and Museum Committee of the Corporation*, 1935. pp. 59 and 32 plates. 6d (post free 9d.)

This book is a reprint of a paper from the Transactions of the Southend-on-Sea and District Antiquarian and Historical Society, vol. 3, no. 1, 1935. It is a model of what a regional archaeological survey should be and the Corporation of Southend is to be congratulated on its enterprise in reprinting it.

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The first part consists of an admirable interpretation of the available evidence. This district is a part of the Thames basin and its prehistory is very much the same as that of the southern shore, though in Roman and Saxon times it was almost deserted. There is very little to criticize in this book, though I am quite sure that Mr Pollitt does not really believe that the division of the Iron Age into A, B and C, is 'based on the geographical areas to which the distinguishing types of pottery are almost entirely confined'. This division of the period in question has a distinct chronological significance as well as a regional one.

The second half of this survey consists of an archaeological gazetteer. To the archaeologist this is the most valuable part and it is extremely well done.

The plates are excellent, though it is a pity that, after Mr Pollitt's careful remarks on the Neolithic period, plate xv, which is called 'Neolithic Axes', should contain excellent examples of the Mesolithic period as well.

This sort of publication does not call for a very profound archaeological knowledge and it is the kind of book that many museum curators might produce to enlighten others on the subject of local finds. If any are inspired to produce small local surveys of this type, I hope that they will treat Mr Pollitt's book as their pattern. He has, however, one great advantage over most of his confrères, the support of an enlightened committee in financing its publication.

NORMAN COOK.

The How and Why Series: No. 17. **THE ROMANS.** By JACK LINDSAY. *A. and C. Black.* pp. 96, 6 illus. by PEARL BINDER. 2s 6d.

This book is an attempt to sketch out the development of Rome's Empire and to explain how a small Italian town came, in the author's opinion, to be the most important factor in the building of modern Europe. Mr Lindsay thinks that the realization that our culture is in all its deepest and most valuable elements Roman, 'would do more than anything else to save us from the domination of the machine and the endlessly repeated sameness of our factory products'. This last phrase is seen to be an unfortunate one when we recall the great flood of mass produced objects that swamped the Roman provinces during the first few centuries of our era, though it is in its law and its sense of justice that the author considers Western Europe to be the child of Rome, not in its material culture.

The narrative of Rome's growth from farmer-soldiers to a people of business men is told with a refreshingly modern outlook. The disruptive force of an increasingly wealthy and powerful middle class seemed to bring Rome near to annihilation during the first century B.C. The author thinks that the Roman instinct, searching for a uniting force, found it in a new form of their old patriarchal customs and religious belief. Caesar became the focus for their emotions as the father of his people and the genius of Rome. The murder of Caesar brought about indirectly one of his aims—the more equitable distribution of wealth, but in time a new wealthy class sprang up. 'The crisis that Caesar dominated, and the crisis that Diocletian saw gathering force, were the same at root. Both were based on the inability of the Government to find a method of production and sales that would bring about a more equitable distribution of goods'.

One cannot but be struck by the similarity of the economic problems of the Roman Empire with those of the world today. Mr Lindsay points out that for good or bad, our world is the Roman world and that whatever solutions of our problems we may find, we must look to the Roman world for the sole analogy of all that happens to us.

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One is tempted to wish that more of our culture was based on that of the simpler people with whom Mr Piggott deals in the next book of this series and that less of it was the legacy of Rome.

No. 18. *THE PROGRESS OF EARLY MAN.* By STUART PIGGOTT. pp. 96 and 6 illus. 2s 6d.

This contains a splendid reconstruction of the life of Early Man in England. Although Mr Piggott's studies are usually of small potsherds, he has not allowed his classification of objects to swamp his interest in the men who made them. This interest in prehistoric man as an individual has given his book a value not only to the young for whom this series is primarily intended, but to all those archaeologists whose studies of small objects have warped their sense of proportion.

As one might expect, the chapter on the Neolithic period is the best thing in the book. It is of great interest to read carefully the reconstruction of the everyday life of these people and to determine upon what evidence each of Mr Piggott's picturesque touches are based. The introductory chapter on the archaeological method will be useful to those who find it difficult to reply to the suggestion that the conclusions of archaeologists are solely a matter of guesswork.

A curious mistake has been allowed to remain, in spite of the otherwise careful proof-reading. On page 78 Mr Piggott talks of Celtic art reaching Britain about 600 B.C., but on the next page he says that it was brought over to England about 100 A.C. The earlier of these two dates is, of course, a slip of the pen, but one gets the feeling that the author is not quite at home with the whole of this section on the Early Iron Age.

While those for whom history is a series of battles, and every prehistoric tool is a weapon, will find no pleasure in the hint of pacifism in some of the author's remarks, the great majority of readers will appreciate Mr Piggott's sense of proportion.

I would particularly recommend this book to school-teachers who have to instruct junior forms in the elements of our prehistory. They will find that it gives just that accurate, yet colourful information that they require. There is a useful bibliography.

NORMAN COOK.

THE PARISH CHURCHES OF ENGLAND. By J. C. COX and CHARLES BRADLEY FORD. B. T. Batsford, 1935, pp. 112, illus. 7s 6d.

In this new edition of Dr Cox's *The English Parish Church*, originally published in 1914, Mr Ford has added new chapters and reduced the detail in some of the old ones; he has improved the quality and reduced the quantity of the illustrations and has made what was a thorough, even if a slightly pedantic study, into a fine picture-book, which has nevertheless retained much of Dr Cox's valuable information.

Autres temps, autres mœurs. The 29 ground-plans of the original book are now reduced to 9. Its exhaustive index is replaced by one containing little save names of places, but a glossary of architectural terms is added, so that the new edition, produced in Messrs Batsford's usual good form, will probably appeal to a wide, if different public from that which treasured the old book. They may well enjoy the gay jacket in spite of its peculiar grammar, and be stimulated by the foreword even if they disagree with it.

DINA PORTWAY DOBSON.

ANTIQUITY

THE SPIRIT OF LONDON. By PAUL COHEN-PORTHEIM. *B. T. Batsford, 1935.*
pp. XII, 116, and 144 plates. 7s 6d.

The Spirit of London is especially to be commended for its photographs. There are nearly 150 of them, a veritable picture gallery, illustrating every conceivable mood and phase of life in London. The camera wanders from Whitechapel to Park Lane, and from Hampstead Heath to Camberwell Green, collecting on its journey all the usual sights but presenting them in such a way that they never appear just 'sights', and meeting here and there on the road such brilliancies as 'London Drizzle', 'The Time of Day in Belgravia', and 'Watercress Barrow'. It is only fair to point out that many of these pictures are supplied by press agencies, but there are others which are the work of such notable camera-artists as Dixon-Scott and Taylor, and the whole series has been admirably chosen and reproduced.

The text is hardly less remarkable. Cohen-Portheim's knowledge of London was extraordinary in every way. He was as happy in Whitehall as in Whitechapel—and for that matter anywhere in the capitals of Europe—and whether he was in the National Gallery or in his tavern off the Euston road, his shrewd cosmopolitan mind was never at rest. True, his judgment (especially in matters of art) will not always meet with general approval, and I do not think for one moment he would have had it so. His enthusiasm over Epstein's sculpture, his drastic condemnation of Sargent as 'meretricious and cheap, if clever', his bold statement that there is no interest in experimental art in London at the present time, are all points of considerable opinion. The author himself says that this is not meant to be a complete guide-book, and yet it hopes to guide: 'where a guide-book enumerates, this book appreciates', and it does so with a forthright excellence.

This review will appear almost a year after the book was first published. To many readers of *ANTIQUITY* it will already have commended itself: those who do not possess a copy ought straightway to go round the corner to the bookseller's with three half-crowns in their hand.

R. F. JESSUP.

THE BEAUTY OF BRITAIN, introduced by J. B. PRIESTLEY, with contributions by EDMUND BARBER, HARRY BATSFORD, GEORGE BLAKE, the late J. S. FLETCHER, CHARLES BRADLEY FORD, CHARLES FRY, CLIVE ROUSE, A. G. STREET, WILL F. TAYLOR, SIR WILLIAM BEACH THOMAS, and EDMUND VALE. *B. T. Batsford, 1935.*
pp. VIII, 248 and about 100 plates. 5s.

This is the second volume of Batsford's new Pilgrim's Library. It contains a pictorial review of the same high standard as the rest of the Batsford books, and it presents in a scholarly way a topographical account of the Britain that is not yet over-run by the charabanc. Each of the regions described is an area 'convenient and profitable for a touring holiday', and this means touring in its best and legitimate sense. It must not be thought, however, that the authors are out of sympathy with the charabanc-tourists; their point of view is well put by Mr Priestley when he says that he does not think the ordinary Briton is completely insensitive—he may be enjoying an experience that he is unable to communicate to the rest of us. In any case this is a first-rate holiday book.

R. F. JESSUP.

DER RÖMISCHE KAISERKULT BEI MARTIAL UND STATIUS. By FRANZ SAUTER. *Stuttgart, Berlin: W. Kohlhammer, 1934. pp. 178, ix. RM 9.*

The worship of the Roman Emperor is a subject that continues to attract interest and research, as the excellent short bibliography in this book attests. Its importance is

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as obvious as many of its details are obscure. The present work, by a pupil of Professor Weinreich, on a special corner of the subject where evidence is certainly plentiful and should be productive of results, need ask no further justification. The great merit of Dr Sauter's book is his thoroughness in collecting material and his ability in classifying it. The Emperor appears in turn as Saviour, as Prince of Peace, as 'Dominus et Deus', as restorer of the 'Age of Gold'. He is compared to the gods themselves—to Jupiter or Hercules—often to the disadvantage of the latter. He is raised above the common level by such epithets as 'magnus', 'sanctus', 'aeternus'—he is placed among the stars, he is credited with preternatural influence on man and nature and is the object of a worship that constantly tends to be confused with the worship of the gods. The student in quest of illustration of any of these themes will find here a rich mine of information. Advantage is taken, at various points, of the opportunity to discuss and illuminate interesting or difficult conceptions. We may quote, as example the discussions of *Εἰς Θεός* (p. 15), the 'magna manus' of the Emperor (p. 103), 'Aeternitas Augusti' and 'Aeternitas P.R.' (pp. 116 ff). Dr. Sauter concludes, very soundly, that the Roman conception of Aeternitas was certainly influenced, but certainly not initiated or determined, by Egyptian and other Eastern conceptions.

Perhaps Dr Sauter might have stressed more than he has done, what he certainly knows—that Martial and Statius often present rather a caricature than a fair expression of Emperor-worship as generally accepted by decent-minded Romans. Emperor-worship was no mere farce or hypocrisy. There is genuine religious sentiment attaching to it, which Martial himself occasionally fails to destroy. But for a poet to represent Domitian as a new Jupiter superior to Jupiter Optimus Maximus was really to insult his calling, his Emperor and his deity in one breath, and ancient Rome really knew that almost as well as we do. Subject to this caveat, Dr Sauter's book may be used with great pleasure and advantage.

H. MATTINGLEY.

A HISTORY OF THE ROMAN WORLD FROM 753 TO 146 B.C. By HOWARD H. SCULLARD. London: Methuen, 1935. pp. xv, 504, with 3 maps. 15s.

This book forms part of Methuen's *History of the Greek and Roman World*, edited by Dr M. Cary, and it is designed as the fourth volume in the series, covering the history of Rome from the earliest times until the Age of the Great Conquests and carrying the narrative to the point where it was taken up by F. B. Marsh's *History of the Roman World from 146 to 30 B.C.*, which was published previously. (See next review.—Ed.)

The book is thoroughly business-like in its arrangement, style, and information. It is divided into four parts, the first three dealing primarily with the political and military history of Rome until her emergence as the supreme power in the Mediterranean, the fourth with Roman life and culture (economic and social organization, literature, art, and religion) during the same period. The story is clearly told, and the two main achievements of Rome during the years covered by the volume—the unification of Italy and the founding of an overseas Empire—are kept well in view all through the detailed account of events. While making his narrative clear and vigorous, the author has not failed to indicate where the dark places are in the early history of Rome and on what points modern authorities disagree. His method in dealing with controversial matters is, as a rule, to summarize the arguments on both sides, giving the names of their chief exponents, and then tentatively to choose one side or the other. His attitude towards the early history is fairly conservative, and the influence of the *Cambridge Ancient History*

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and of De Sanctis' *Storia dei Romani* is strong—a debt which the author duly acknowledges. Certain more specialized questions and certain controversies to which full justice could not be done in the narrative are dealt with in Appendices, of which there are ten. A chronological table and a short bibliography are added.

Altogether the book is a very competent and useful piece of work, and may be heartily recommended to all—especially sixth-form Masters and University Students—who want a history of this period in one volume that indicates the lines of modern research and attempts a readable synthesis of its results. R. C. CARRINGTON.

A HISTORY OF THE ROMAN WORLD FROM 146 TO 30 B.C. By FRANK BURR MARSH. Methuen, 1935. pp. 427, with 5 maps. 15s.

It is difficult to say much that is new of a period that has been so thoroughly worked over as the close of the Republic, but Professor Marsh showed in his *Founding of the Roman Empire* that he could see old problems from a new angle, and write with freshness and vigour. His brief description of the period from Sulla to Caesar and his analysis of the failure of the Republic made us look forward to his fuller treatment of the period. We must confess to a measure of disappointment, though there are good things here too. The picture of Sulla combines what is best of Carcopino and the *Cambridge Ancient History*, and adds something more; Caesar, more closely woven into the texture of his times, is a more intelligible figure, and Pompey is nearer flesh and blood than is his usual fate. The description of the political manoeuvres that preceded the civil war is fair to both sides; and the emphasis laid on the rural as opposed to the urban proletariat in the army reforms of Marius is new and important. But the book has also serious weaknesses. Marsh has been careful not to overload his narrative with detail, and to avoid controversy where the issue is unimportant. This is sound policy in a book of this scale, provided that the narrative is backed by a thorough knowledge of the sources; but several passages raise doubts on this score. In discussing the enfranchisement of the Italians, for instance, Marsh would reconcile Appian and Velleius. The ten new tribes of Appian's account represent the restrictionists' first proposal in 90 B.C., never carried into effect; the eight old tribes of Velleius represent their second position under Sulla in 88 B.C. But Appian implies that his proposal was carried into effect, and Velleius that the confinement to eight tribes was contemporary with the citizenship law: the two accounts surely cannot be reconciled in this way. Saturninus' agrarian law is confused with his colonial law, though the sources do not combine them; and in suggesting that Caesar recruited two of the three legions that wintered at Aquileia in 59–8 B.C. during his consulship, Marsh overlooks a passage in the Commentaries (B.G. 1, 10) where Caesar refers to them as 'legiones veteranorum'. There are also important omissions. The *Lex Acilia*, which is a vital point in the evidence for Gaius Gracchus' work, is not mentioned; and the discussion of the political results of the Social War is very incomplete. When did the Italians who were fighting in 88 B.C. get the citizenship, and what does Livy's Epitomator mean by 'novis civibus suffragium datum est' (84 B.C.)? Marsh seems to imply that, when citizenship was granted, the Italians kept their local institutions, apparently until the *Lex Julia Municipalis*; but it seems clear from inscriptions and from Cicero's writings that a standard pattern of constitution had been imposed long before Caesar's dictatorship.

The economy in footnotes makes it difficult at times to know whether Marsh has reason for departing from orthodox views. The colonization of Narbo Martius is made prior to the formation of a province in Transalpine Gaul; and, though the colony

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was founded under pressure from the Knights, their interests were apparently unaffected by the invasion of Cimbri and Teutoni. No evidence is given for the statement that Caesar conferred full citizenship on communities in Gaul.

But of more importance to the book as a whole is the analysis of the tribal and centuriate assemblies. Marsh does good service in trying to give a practical picture of how these assemblies worked, in analyzing the composition of the rural tribes, and the importance of the group vote. But his conclusions seem too sweeping. The senate, he thinks, owed its continued supremacy in the second century not primarily to public confidence, but to a political machine. The nobles controlled the votes of the rural tribes by their retainers, and their supremacy was only threatened when the knights began to build up a machine of their own by securing retainers who voted in the rural tribes. No doubt the importance of *clientes* in voting was considerable; but the insistence throughout this book on 'the senatorial machine' oversimplifies history. It seems clear that, if the commons' interests were seriously affected, they could and often did outvote both senators and knights; and, during the reforms of both Gaius Gracchus and Livius Drusus, it is clear that the senate is by no means a united body. Throughout the period there seems always to be a strong minority of radicals in the house, and perhaps a larger number of independents. No doubt there was considerable jobbery in the assemblies, and, by taking advantage of the group system, a little money could go a long way; but it is not impossible that a lot of decisions were made on their merits, and that oratory could influence votes.

The book closes with two general chapters. The first reviews social conditions in Italy, the army system and provincial government. There is good material here, but a history of the Roman world should have said more of the development of such provinces as the Spains and Narbonese Gaul. The final chapter, devoted to literature, is overloaded with detail. It might well have been more general in nature, and should have included the Virgil of the thirties.

R. MÆGGS.

PREHISTORIC MAN IN IRELAND. By CECIL P. MARTIN. *Macmillan*, 1935.
pp. xi and 184, with 11 plates. 21s.

Dr Martin's book is assured of a wide welcome. Its appearance is a sign of the new spirit in prehistoric research which is now astir in Ireland, north and south; and in its inception, like many other related activities, it owes much to Dr Adolf Mahr, Director of the National Museum of Ireland.

We find here not merely (in the author's modest words) 'a fairly complete account of all available Irish prehistoric skulls', but also a well-documented survey of the modes of life and death of the people themselves. There are statistical tables, with full anthropological measurements, for 122 skulls of known or uncertain date from the Kilgreany Cave man to the Norsemen; in addition particulars of 73 Irish skulls of modern or recent times are provided for comparison. Whatever changes may be found necessary in the interpretation of the anthropometric evidence, this body of material, widely and diligently collected, must be of permanent value.

An introductory chapter blames the ancient Annalists (and may we add the modern?) for our present state of ignorance concerning the racial characters of the inhabitants of prehistoric Ireland, and contains some admirable sentiments on the current conception of race. If Dr Martin later reverts, under the stress of analytical concentration, to a simpler connotation of the word 'race', he does not appear to be conscious of the

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discrepancy. He might claim that he wishes to be understood by the general reader, for whom two excellent chapters on the dating and measuring of ancient skulls are provided. A similar simplification is apparent in the accounts of 'invasions', which figure only less largely in this book than in the *Annals*. Dr Martin reminds us that Ireland, from its space-relations and environment, may be expected to retain old racial stocks, yet he is so taken up with his invaders that he sometimes overlooks the distinction between culture and race, and is tempted to define a race and deduce migrations from the measurements of a few skulls. One feels that Ireland is regarded too much as an appendage of England and not sufficiently as an island in its own right among the seaways of western Europe.

In a valuable series of 9 chapters Dr Martin deals with the skeletal material from as many successive culture stages. On the whole he is inclined not to reject the authenticity of Kilgreany man, though he weighs the doubts that have been thrown on the age of the Co. Waterford discoveries. The people of the 25-ft. raised beach are treated at some length, for the author is on old ground here. He finds 'a race of low stature, with very long narrow and high skulls' living in Ireland at this 'early Neolithic' time. English readers will notice that the word Neolithic is used in its old sense to cover a period of indefinite duration preceding the early Metal Age. It is surely inadvisable to group together raised-beach folk and sandhill dwellers, for many of the sandhill settlements are later than the early megaliths. That the chapter really demonstrates the survival of the old shore-dwellers into later periods is a legitimate conclusion.

The megalith-builders are held to be intruders 'identical with the long barrow people of England' yet closely related to the raised-beach folk. Dr Martin is inclined to argue from the English analogy that all the Irish megaliths must be 'Neolithic', his geological training leading him astray, it seems, in the employment of archaeological data as 'zoning fossils'.

Perhaps the most startling revelation is a 'broad-headed invasion' of the early Bronze Age. There have been hints of it in recent writings, and the evidence now assembled is impressive on first reading, though in fact only a dozen skulls are cited and their cephalic indices are often well below 80. Dr Martin regards his newcomers as 'identical with the round-barrow people of Great Britain', but the problems raised by the rarity of the beaker in Ireland are not faced; it is not enough to say that 'the type of their pottery varies somewhat between the two countries'. Other possible explanations should be considered. Perhaps Dr Martin is on the right track when he identifies his broadheads, on another page, with the 'Prospectors'. We know that cremation was practised in the megalithic period, and this may have destroyed earlier remains of a similar strain. Alternatively it may be that many of the short cists described belong to the later Bronze Age and that this brachycephalic type was one of the mixed racial elements that came with the Celtic language. ('All the short cists found so far are located in the midlands or north-eastern side of the island'). Dr Martin's main criterion of date, the burial rite, is not a reliable one, and there seems no good reason for classifying inhumation graves as early Bronze Age and cremation as late Bronze Age. Nor has the food-vessel, in these days, much dating-value. It is in the late Bronze Age, if at all, that archaeology would ask for an invasion, and this is the one period where Dr Martin's zest for finding intrusive types fails him.

Whatever the ultimate solution of this and other problems may be, Dr Martin has done a great service in assembling the material, and all archaeologists are deeply in his debt. The volume ends with a new attempt to fit the legendary invasions into the scheme now advanced. Attention must be called to the disquieting number of minor slips

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observed in a book with so much statistical data. They occur, fortunately, mostly in personal and place names, where they do least harm, but the repeated mis-spelling of at least six well-known authorities is unaccountable. E. ESTYN EVANS.

THE AQUEDUCTS OF ANCIENT ROME. By THOMAS ASHBY. Edited by I. A. RICHMOND. Oxford: Clarendon Press, 1935. pp. xiv, 342, with frontispiece, 24 plates, 34 text-figures, and 7 maps. £3 3s.

Dr Ashby's book on the 'Aqueducts' has long been talked of, for the author's unrivalled knowledge of the Roman Campagna, his unbounded enthusiasm and rugged energy had become a byword amongst archaeological students in Italy. The work was planned some 30 years ago, but the intricacy of the subject, the vast amount of material that had to be reduced to order, the labour of writing, and continual digressions into other, more or less closely related topics, delayed the fulfilment of the plan, and, as we gather from the Editor's note, the manuscripts was not deposited with the publisher till three weeks before the author's death in 1931. Even then, however, the book was not yet ready for the press, and Mr Richmond—an obvious choice for the work through his own knowledge of the Roman remains and his personal acquaintance with Dr Ashby—undertook to arrange the text and see it through the press. It need imply no disrespect to the memory of the author, no suggestion that the book is anyone's but his, to say that Mr Richmond's task cannot have been an easy one and to admire the orderliness to which he has largely contributed.

The book is divided into two parts. Part I contains 47 pages: after an introduction on Earlier Topographical Study, it treats in four chapters of the Making and Preservation of the Aqueducts in Roman Times, the Staff of the Imperial Water Board, the Career and Work of Sextus Julius Frontinus, and the Engineering of the Aqueducts. The volume as a whole is designed essentially for specialists, but these four chapters, despite their packed phraseology and technical terms, will have a wider appeal than the rest. Strabo speaks of the aqueducts, along with the roads and drainage-system, as the most remarkable of the public works of the City of Rome (v. 3, 8). Their remains have stood through the ages for all to study who had the mind. Three writers at least—Lucas Holste (d. 1661), Raffaele Fabretti (d. 1700), and Diego Revillas (d. 1746)—planned large-scale works upon them, though they died before the fulfilment of their plans. Moreover, Frontinus, *curator* of the water-supply at the end of the 1st century A.D., has left in the *De Aquae Ductu* the result of his own honest attempt to grapple with the intricacies of the service under his control. Here then is a subject (it might be thought) of which it ought to have been possible long ago to write an account which was at once authoritative in detail and yet sufficiently broad in treatment to be of service to workers in kindred archaeological fields and to the general reader. But in fact, such an account was still to seek, and one of the most valuable sections of Dr Ashby's book is the fourth chapter of Part I—a masterly survey of the whole construction of an aqueduct, from the selection of suitable springs to the creation of pressure in the distributing pipes within the City—which probably comes as near to supplying that need as will be possible for many years to come.

Part II is topographical, a separate section being devoted to each of eleven aqueducts—Appia (312 B.C.), Anio Vetus (272–269 B.C.), Marcia (144–143 B.C.), Tepula (125 B.C.), Julia (40 B.C.), Virgo (19 B.C.), Alsietina (shortly after 2 B.C.), Claudia and Anio Novus (A.D. 38–52), Traiana (A.D. 109), Alexandriana (A.D. 222–235). The method of treatment

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is the same in each section : first (except for the Traiana and Alexandriana, which are later than Frontinus), the relevant portions of the *De Aquae Ductu* are translated ; then such further information of value is given as can be adduced from other ancient writers, chiefly in so far as it concerns repairs effected after the period of original construction : next come references to the *cippi*, and finally, forming the bulk of the section, a detailed description of all the traces of each aqueduct that are still visible or, though no longer visible, were known to the author to have been seen by earlier investigators, from its source until it loses itself either in the Campagna or within the modern city. On the technical side Dr Ashby was assisted by a careful levelling of the remains that was made by the Engineering School in Rome, the results of which were published in 1917, while his text is illustrated by drawings made soon after 1912 by the late Mr F. G. Newton. In chronological questions which depend on structural technique and building courses, Dr Ashby relied on Miss Van Deman's work, *The Building of the Roman Aqueducts*, which was published in 1934 : indeed this volume and Dr Ashby's are complementary. Finally, a most important feature of the book are the seven maps which were supplied by the Istituto Geografico Militare. Those who remember Dr Ashby's strictures on archaeological works which were inadequately equipped with maps will be glad that his own last contribution is so well furnished.

Without any doubt this book will remain the standard work on the subject for very many years. Though here and there further excavation may clear up doubtful points about the course of the aqueducts ; on the whole, with the passing of years, their state can only become worse, and it was time that the actual remains were recorded in permanent form. The production is of the highest order, and textual errors are rare. The photographs are numerous, and, though lacking definition in one or two instances, they serve their purpose admirably. It is a splendid work, and one of which British archaeologists may justly be proud.

R. C. CARRINGTON.

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Editorial Notes

EXCAVATION is, of course, the chief means by which the archaeologist performs his task of reconstructing the past, and it is likely to remain such. The different branches of archaeological technique are mostly concerned either with excavation itself and its products, or with chance discoveries made by digging for some other purpose. Let no one think that anything said here is intended to depreciate the value of excavation ; to do so would be unscientific and therefore absurd. But excavation is merely the first step in a long and arduous undertaking. No excavation is complete until it has been followed up by the conservation and exhibition of the discoveries, and by adequate publication of the results.



Conservation may take the form of 'filling in', as on most British prehistoric sites, where the policy of keeping them open is often impracticable on grounds of expense ; or by judicious restoration, such as that of H.M. Office of Works, or, abroad, by Sir Arthur Evans at Knossos. It may also take the form of treatment of objects *in situ* before removal ; the best examples in recent years being the measures adopted by Sir Leonard Woolley at Ur and by the Harvard-Boston Expedition at Giza (see *ANTIQUITY*, 1927, I, 216-8). Here great progress has been made, not so much in science itself as in its application by archaeologists. Fifty years ago we should have had nothing from these two sites but the imperishable remains, many of which would have been meaningless when thus divorced from their perishable framework.

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With the definitive publication of his results, the excavator's task may be said to end, for he is not, as such, concerned with the exhibition of his finds in museums. Publication necessarily involves the collaboration of specialists, and the stratigraphical position and associations of the important finds must be clearly stated. But no one expects the excavator to publish the final and complete account of everything. For instance, it is not his business to publish the transcription of every inscribed tablet or fragment of papyrus found, nor need he even be able to decipher them himself—many of the most distinguished and capable excavators today cannot do so. It is enough that he should supply the expert with certain essential information about their discovery.

The excavator is the front-fighter of archaeology ; he fights in the front-line trenches of the army which is advancing knowledge (not to be confused with that other army which claims to be advancing civilization !). In return he has a right to demand the support of those who can follow up his achievements and utilize them to the best advantage. Does he receive that support ? So far as certain already overworked specialists are concerned, he receives it in full measure ; but the patrons of learning, particularly the Universities, do not support him as they should. Specialism is a whole-time job, and there are not enough specialists. A young student's choice is generally limited by the necessity of earning a living ; if there are no endowments to help him during his ' post graduate ' period and few professorships to look forward to later on, he must perforce abandon the subject of his choice and yet another student is lost, too often to become a square peg in a round hole.

How is it, for instance, that papyrology, the study of ancient papyrus texts, seems to be becoming a lost art in this country ? It is not for lack of material, because there are masses of it buried in store-rooms at a certain University. How many students has that University endowed to transcribe and edit these papyri, recovered by one of its own professors ? (The answer is—ONE !) What proportion of the cuneiform tablets found during the last fifteen years or so has been published in Britain by endowed British students ? Is there any other country which has accumulated such masses of magnificent historical material, only to leave it unused ? What is wrong with the ' home front ' that it permits

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such a state of affairs, remaining apparently unconscious of any responsibility in the matter? Shortage of funds is no excuse, for money is forthcoming for other things for which no responsibility has been incurred.

For, apart from special cases (such as the papyri) where the responsibility is as clear as the daylight, there exists also a general moral responsibility to support the worker in the field. Unless he is supported in the obvious way, by enabling students to study and edit his specialist material, it would be better not to go on excavating, or to confine excavation to such sites as are endangered by 'the march of progress'. To carry out costly excavations in the East and then leave the important documents unread and unpublished is a futile proceeding; but it has been done, and the guilt remains.

Not only are the documents left undeciphered; there is no room, it seems, even to exhibit them or a mass of other objects found. It is notorious that the British Museum is overcrowded; so too is the Pitt Rivers Museum at Oxford, which one might almost call the original home of Anthropology itself, so closely is it associated with the names of Tylor and Pitt Rivers. So too is the Ashmolean, the oldest museum in England, and one of the finest. There is no University in the world, we venture to say, with such a heritage; there are few that would not have put it to better use.


The proper remedy for this state of affairs is, of course, not to stop accumulating material but rather to subsidize the study and conservation of it. Till then, however, one naturally turns to consider other forms of archaeological work. Foremost among them is archaeological survey—the accurate location, planning, description and illustration of ancient monuments. We in England are justly proud of the pioneer work of our Royal Commission on Ancient Monuments and of the Ordnance Survey; and we think it is time to apply their methods to other countries. The proposed Archaeological Survey of Palestine is a step in the right direction, and deserves every support (including donations); it is to be carried out jointly by the Palestine Exploration Fund and the British School of Archaeology in Jerusalem, and has the promise of Government help. The results will appear in illustrated reports issued at regular intervals.

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The idea of such an Archaeological Survey deserves to be widely circulated, because it has a great future and is applicable also to other regions. What would not one give for Reports describing, on Royal Commission lines, the antiquities of Mesopotamia! Something of the kind, good enough in those days but now in some respects out of date, was attempted single-handed by Captain Felix Jones and H. B. Lynch in the middle of the nineteenth century. The mere description, illustrated by plans and air-photographs, of the visible remains of the country would be of the greatest use to intending excavators, and will besides record facts that would otherwise be lost to knowledge. We commend the suggestion to the young and active British School of Archaeology in Iraq (Gertrude Bell Memorial). It is, we feel sure, the sort of undertaking that Gertrude Bell herself would have approved, for much of her own work was of precisely this character.



If conservation of antiquities is the prime consideration, as of course it must be, the question arises—Where are those antiquities safest, in the ground or in an urban museum that may be bombed? The problem is a terrible one, but it must be faced. The one course which is 100 per cent. safe is complete publication, for this ensures that *some* historical records will survive, even if the originals perish. (But we are *not* publishing!). Thus in the same way, it is sometimes necessary, in the interests of science, to destroy the upper layer of a site in order to explore the lower layers; but before this is done the most complete record is made of the upper layer, which for the future will exist only on paper. Sir Flinders Petrie has stated the case with admirable lucidity (*Methods and Aims in Archaeology*, 1904, 173-4). The Ordnance Survey is attempting to do the same sort of thing for old estate-maps and cadastral plans in private hands. These usually exist only in the form of a single, irreplaceable manuscript, at the mercy of fire, damp and other accidents, including sometimes the negligence of ignorance. The broadcasting of facsimiles is the only reasonably sure safeguard against complete loss. Even a single edition may achieve this, as did Archbishop Parker's edition of Asser's *Life of Alfred*, published in 1574. (The original manuscript was destroyed by fire in 1731). Unfortunately antiquities are not always safe even when buried in the ground, especially in the East; but at any rate they are not then concentrated in vulnerable spots.



The Story of Uruk

by WALTER ANDRAE

*Director of the Near Eastern Department, Berlin State Museum**

URUK is the ancient name of the great ruin-field of Warka, which is situated near the station of El Khidr on the Irak railway, about 20 kilometres north of the Euphrates. It is now in the heart of a desert region almost exactly in the middle of the land of Sumer (the Shinar of the Old Testament).

Sumer might well be said to be the hub of the ancient East, for it is almost equidistant from the frontiers of Persia, Anatolia, Syria and Palestine and from the shores of the Black Sea and the Caspian. So far as is at present known, Uruk was the largest of the ancient Sumerian cities—larger than Ur, Lagash or Eridu, Larsa, Nippur, Eshnunna or Kish, larger even than the older city of Babylon. Uruk owed its existence to the proximity of water. The original neolithic settlement lay in or on the lagoon, whose alluvium was met with in our deepest trial-pit. After the retreat of the Persian Gulf, whose shore is now some 300 kilometres to the southeast, the land was watered by the Euphrates or covered by its marshes. When it was a flourishing city Uruk lay on the right or western bank of a branch of the Euphrates. Although now quite dry and filled up with wind-blown deposits, the bed of the river can still be followed for miles, by the string of deserted village mounds on its banks. As time passed the city shrank in size, until at last it came to an end after the destruction of the Parthian kingdom by the Sasanids in the 3rd century A.D. In Greek and Parthian times it was called Orchoë, and in the Old Testament Erech. During the last five hundred years of its existence it still enjoyed periods of prosperity. As late as the 2nd century B.C. two of the greatest temples of Mesopotamia were rebuilt on the sites of the old temples of Bit-resch and Esh-gal.

*Translated by the Editor, by permission, from a Handbook of the Deutsche Forschungsgemeinschaft (Berlin, 1935), pp. 9-29, which is sold at the Vorderasiatische Abteilung of the Berlin State Museum.



THE STORY OF URUK

Numerous literary references had already revealed a good deal about the commercial activities of the Greek Orchoë, its priesthood, schools and astrology, together with something of the Uruk of Sumerian times. In 1854 Loftus made a very useful plan of the city area and also dug in several places, exposing one of the clay nail mosaics. Then in 1912-13 J. Jordan and C. Preusser carried out a joint excavation on behalf of the Deutsche Orient-Gesellschaft, working there under great difficulties. They came from the German excavations at Assur, where they had been trained in the methods elaborated by Robert Koldewey at Sinjirli and (even more) at Babylon. These methods they had to adapt to conditions at Warka. Uruk, like every other ancient site, laid down its own laws and conditions. Mounds and hollows alike were covered in sand; both temples of the Greek period were buried under a huge pile of bricks. At Koldewey's suggestion Jordan turned his attention first to one of these temples. He obtained a clear picture of the Anu-Antum (Bit-resh) temple, the shrine of Anu, the god of heaven, one of the great triad and of his partner Antum. In the 51st volume of the Reports of the Deutsche Orient-Gesellschaft, Uruk-Warka, are published both photographs of this temple and of its contents and records which later could be checked and completed. This took place after the war, in 1928, when as the result of a memorandum drawn up in 1927 by Jordan and myself, the work was resumed.

The decision to spend so much on German work in the East at a time when general conditions were so bad was justified, not merely by the results of the pre-war excavations and by what we knew from literary sources about the importance of Uruk, one of the cities of the famous Gilgamesh epic; it was also inspired by the hope of obtaining more results as valuable for the early history of early Sumerian culture, and indeed for the history of civilization itself, as Woolley was then beginning to get at Ur. As each season passed this decision proved more and more correct. Not a winter went by without the discovery of some important new architectural forms, works of art and inscriptions. As the excavations extended both horizontally and vertically, there were revealed in concrete form not only the beginnings and limits of each separate period, but also, what is more, an unbroken sequence ranging from the first neolithic settlement of lake-dwellers right down into historic times.

We discovered not only types but also prototypes. Nowhere else has such a clear and complete picture been obtained. It is one which,

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it is hoped, may provide other excavators in Mesopotamia with a useful series of dated standard types.

The system of excavation adopted was, as I have said, that of Koldewey ; it might almost be called the microscopic method, and is one that is now adopted at every scientific dig. In Germany since the war, indeed, the minute and careful study of stratification, and the documentation of prehistoric and early historic finds has led to remarkable achievements. Similar care was needed when the early prehistoric strata were revealed beneath the oldest substantial buildings at Warka. By exact record of position it became possible to date not only the buildings and their contents, but also the earliest human and animal clay figurines and the earliest script—that called ‘ pictographic ’ because it employs pictures of men, animals, plants, houses, implements, etc.¹

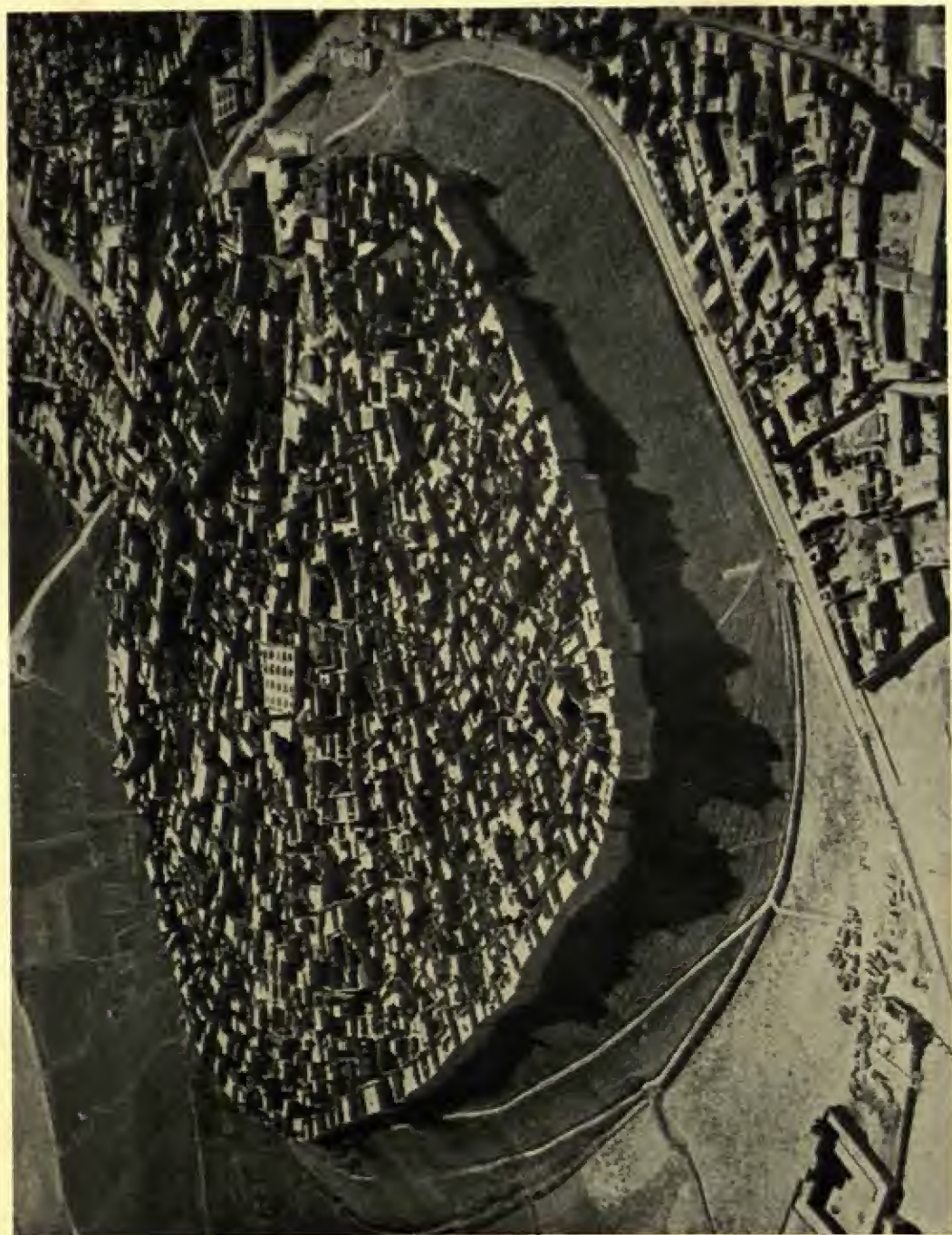
To comprehend the meaning and character of any given stratum one must visualize the way in which it was formed. When a community settles on a given spot, it brings there all kinds of things which never leave the place again. Ash accumulates on the hearths, and so do potsherds, earthen remains of all kinds, bits of walls, kitchen refuse, such as meat and fish-bones, shells, implements, querns and so forth. The more substantial the house, the more extensive will be its remains. A tent, when burnt down, leaves nothing ; a reed hut leaves at most a layer of ash ; but a building of mud or crude brick will yield considerable debris and even remains of its walls. Of houses of stronger materials, such as wood, burnt brick or stone, one may hope to recover quite distinct outlines. But as soon as this more substantial form of architecture is encountered, one has to deal with extensions and reconstructions, a jumble of old and new. Then the architect must begin to survey and classify. It is necessary to relate the smaller finds to all the old occupation-levels and floor-levels, though of course this is done also in the older layers, where no substantial buildings are found.

So the original settlement, through destruction and decay, continues steadily to rise and eventually becomes an inhabited mound, until sometimes the site is abandoned, as occurred at Uruk in the 3rd century A.D. Many such sites, however, are still inhabited to-day, such as Kirkuk, Erbil (see PLATE I), Nebi Yunus (part of Nineveh).

The aim of the excavator, then, is to determine as accurately as

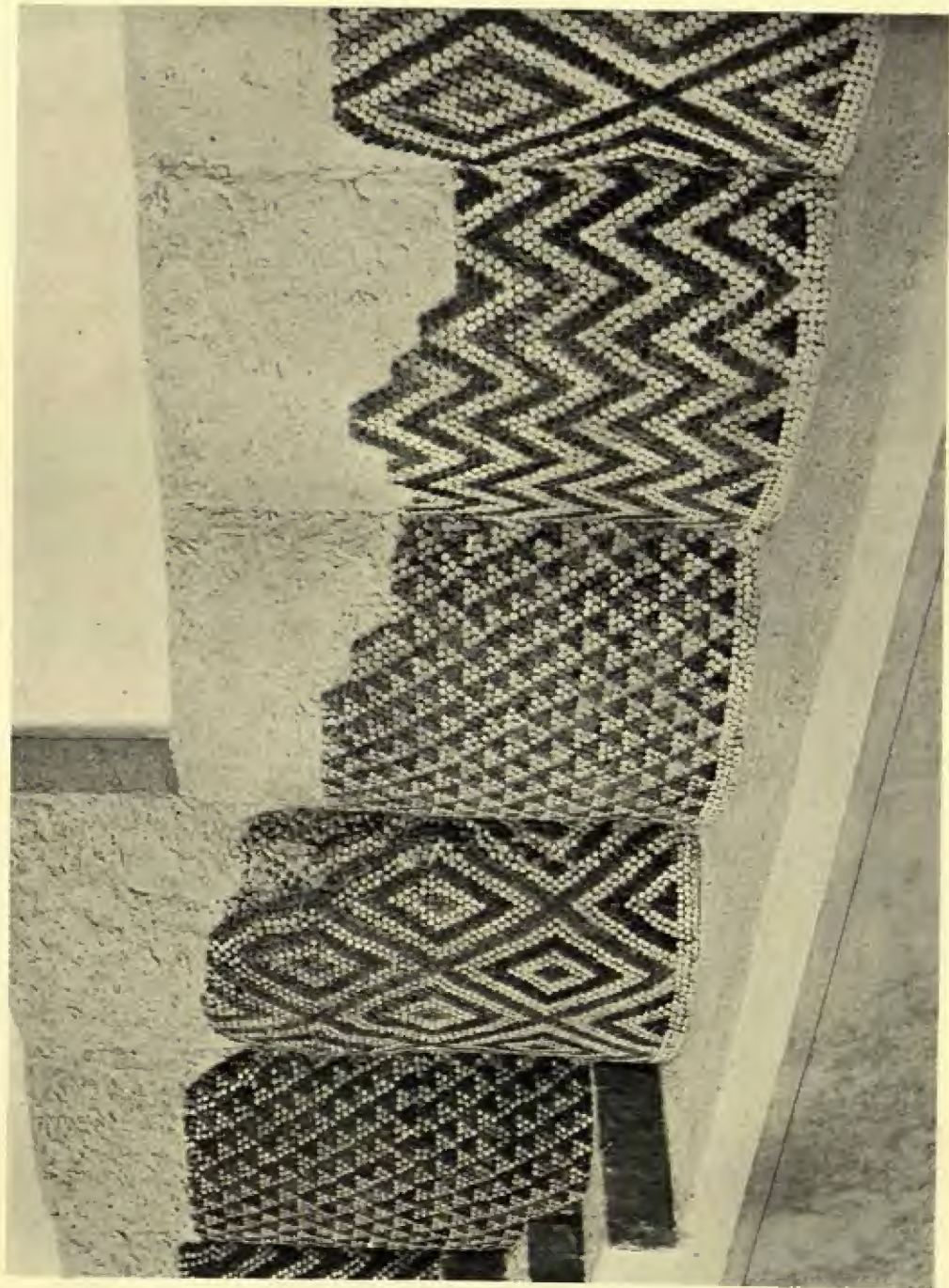
¹ We hope shortly to publish an article on the Origins of Writing, but are awaiting the publication, promised this year, of Dr Falkenstein's work on the pictographs found at Uruk.—Editor.

PLATE I



ANCIENT CITY OF ERBIL (ARBELA) ON ITS HUGE, ARTIFICIAL MOUND, DATING BACK TO PREHISTORIC TIMES
Royal Air Force, Crown copyright reserved

PLATE II



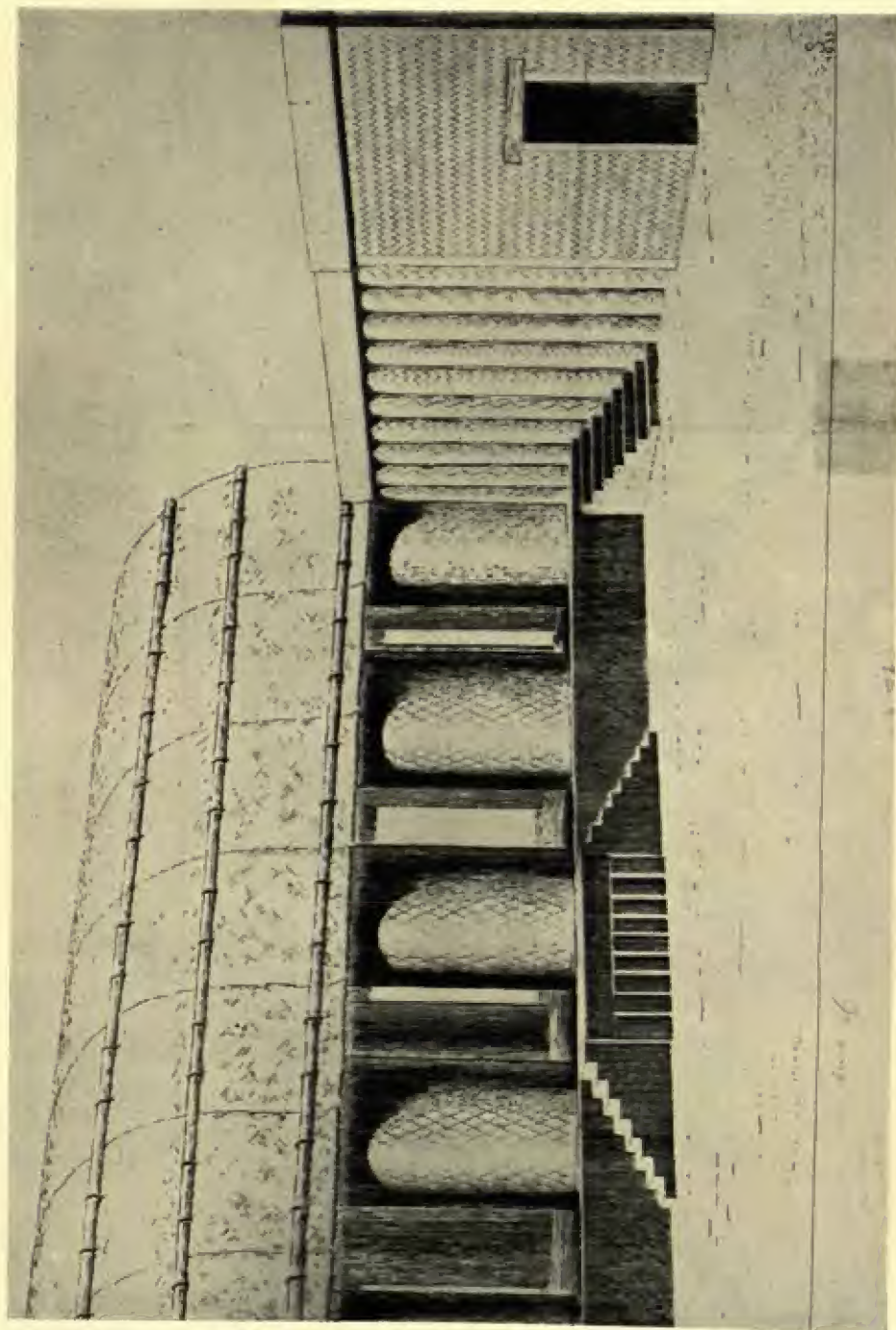
CLAY NAIL-MOSAIC OF THE INNIN TEMPLE, EANNA (4th MILLENNIUM) AS RECONSTITUTED IN THE BERLIN MUSEUM

PLATE III



MOSAIC WALL OF TEMPLE-PLATFORM IN EANNA, URUK (4TH MILLENNIUM) AFTER A PAINTING BY ELISABETH ANDRAE

PLATE IV



RESTORATION OF THE HALL OF COLUMNS, URUK IVb (MIDDLE OF 4TH MILLENNIUM)
Ph. Berlin Museum

PLATE V



ALABASTER VASE FROM URUK III, SHOWING CULT-SCENES

PLATE VI



FACADE OF KASSITE TEMPLE FROM URUK (1430 B.C.) RE-ERECTED IN THE BERLIN MUSEUM

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possible the dates of all the superimposed strata in the ruin-hill. Mesopotamia in general, and Uruk in particular, is peculiarly favourable for such investigations. With its unbroken sequence of deposits Uruk covers a period of four thousand years. For this there are few parallels in Egypt and none in Greece or Northern Europe. There is always some unfortunate impediment to the establishment of a long historical sequence—either the site starts too late or else it has been deserted too early.

The excavator's hope of achieving a rigid system of absolute chronology is frustrated by the absence of written documents. Back to about 3000 B.C. the study of cuneiform tablets written in the Babylonian-Assyrian language tells us something about Sumerian literature and the traditional chronology. At the beginning of the 3rd millennium the chronology is still the subject of controversy, but afterwards, from about the middle of the millennium, it becomes more securely established.

Back beyond the controversial period into the 4th millennium the character of the script helps us until about 3200 B.C., when we find at Uruk the first, pictographic, script whose 1500 signs consist of pictures of objects which are generally easy to identify. These are scratched on the surface of small clay tablets, whereas the later cuneiform signs derived from them were impressed in the clay with a wedge-shaped stylus (*cuneus*=a wedge). From developments in the pictographs themselves it is possible to date about 500 years of stratification, namely that from Uruk IVb to Uruk I,² the lowest stratum (IVb) containing the first written documents. In still older periods and in deeper strata we are obliged to fall back on comparisons with other sites. Absolute chronology being there unattainable, we have to be content with relative chronology.

After 3000 B.C., however, the absolutely-dated strata yielded a wealth of finds—art-products, implements, graves, ornaments, pots—datable by documents and buildings or, themselves acting as type-fossils, helping to date otherwise undated strata. Thus do the objects found enable us to reconstruct a historical picture of the site. For the earliest periods one has to rely entirely upon the artifacts; for the subsequent ones the evidence is supplemented by written documents.

One must not expect the classified finds necessarily to enlighten us on the subject of race, to tell us what particular race was domiciled

² The numbering of the strata at Uruk begins at the top, numbered 1, and works downwards.—Translator.

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here at that time. They do, however, reveal something of far more real value—how these early folk, of no matter what race, gradually acquired a knowledge of themselves, of God and of nature, and how they mastered the art of life. To claim so much for the interpretation of a few pots and painted figurines of men and women, cattle and sheep, may perhaps be thought extravagant. Yet these occasional witnesses take their place in the far richer groups of painted pottery found in the plateau and foot-hills of Iran and Northern Mesopotamia. A comparison between these vessels of the Highland culture and those of the Sumerian plain justifies an ascription to the Highland people of a more vigorous grasp of the trinity of God, man and nature. That this understanding deteriorated almost to the point of extinction amongst the dwellers on the plain is to be inferred both in the far greater simplicity of their 'form-vocabulary' and also in the falling-off in comprehension and treatment there displayed.

We should know little of the life and habits of the neolithic peoples of the East were it not for the discoveries made by A. Langsdorff in 1932, in the prehistoric mound at Persepolis. For neither at Al 'Ubaid nor at Uruk was the full extent of the neolithic strata exposed. The transverse sections at Uruk revealed thin burnt layers and remains of reeds, making it seem highly probable that the dwellings consisted of reed huts. Gradually at Uruk walls of crude brick begin to appear, starting in stratum XVII.³ The walls are certainly of a simple character, but then it is an early date to encounter such a form of building at all. Reeds and clay were known as traditional building materials as early as the Gilgamesh Epic, and they are perpetuated in a more substantial form in the brick architecture of Mesopotamia and the stone architecture of Egypt; and they are still used in the traditional style today in both countries.

Uruk has yielded some early (4th millennium) pictures of this architecture. Seals and other objects represent houses and palaces (see FIGURE opposite), as well as other architectural features of a symbolical religious character.

Symbolical as contrasted with practical domestic architecture begins in Sumer in the middle of the 4th millennium, and at Uruk in stratum VI. So far back has excavation revealed the efforts of the Sumerians to protect their cult-buildings from decay by perpetuating, so to speak, the traditional forms of reed-construction. This they did

³ The lowest stratum found at Uruk is that numbered XVIII.

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by covering the perishable crude brick walls with a thick coating of clay plaster in which they set coloured clay nails, thus producing a durable encrustation of mosaic (PLATES II and III). At this level, too, are found those earth-platforms which were forerunners of the famous temple-towers or ziggurats. The Tower of Babylon was the last and greatest outcome of this line of development. Since 1929-30 it has become evident at Uruk that the early dynastic and predynastic Sumerians—as we can now, though still with certain reservations, call the people of Uruk back to stratum VI—were the originators of substantial building in brick and in clay nail mosaic, and of the ‘temple-mountain’.

At Uruk itself the earliest groups of these cult-buildings are beginning to come to light. Their uncovering has advanced furthest in



SEAL-IMPRESSION FROM URUK IV, SHOWING ELEVATION OF A BUILDING

v, ivb, and iva, and in III a large portion of them has been revealed. We did not succeed, by tunnelling beneath the ziggurat of 2300 B.C., in discovering the ziggurats associated with the ground-level structures of these strata. Little is known of their form. One of the buildings flush with the soil in v—an elongated rectangle over 80 metres (262 feet) long—was to have been erected on carefully laid stone foundations, but it was never built. Yet another cult-building of this period, or perhaps of an even earlier one, was found on the second ziggurat of Uruk, which is situated beside the later Anu-Antum temple and for that reason was called by us the Anu ziggurat. Upon it is the first and only temple on the top of a ziggurat of which we have any knowledge—a modest little structure of crude brick with a ground-plan like that of the building in v. It has a recessed wall, and the walls were white-washed. Both the shorter sides of the court were constructed as entrances, provided with double gates, thus giving the court the appearance of a vestibule

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with narrow chambers and steps on each side. This arrangement may perhaps be explained as follows :—The deity might be supposed to enter the building as if it were a guest-house open at the sides, just as are now the reception-huts of tribal chiefs. In order to take up its residence on earth, to 'manifest' itself, the deity descends into its man-made image and its abode, the earthfast temple. The Anu zigurrat and this white temple were altered on one occasion to raise their height ; but after the end of the 4th millennium they were apparently left untouched and unused, suggesting that they were regarded as sacrosanct. We know what the outer and upper portions of the Anu zigurrat were like ; it consisted of an earthwork levelled at regular intervals to form flat terraces of reeds and asphalt. The outer surface of the walls was set in places with clay vessels, to enable the angle of slope to be left steep. For without such superimposed rows of vases, this early staged zigurrat—more properly to be described as an earth-hill than as a building—must have had a much gentler slope. These vases developed into thick hollow cones, which in turn became thick nails with hollow heads ; from these again evolved clay nails. Artistic designs formed with these nails begin in the very ancient stratum VI, and they are characteristic of the architecture down to the period of stratum III, though even after then they were not entirely given up. It is only at Uruk that we find this art extensively used, and we may therefore assume that it originated and became diffused from there. Since then, excavators have been on the look-out for these clay nails at other ancient sites in Sumer ; but up to the present they have found only occasional examples, or found them divorced from their context, as at Ur. Uruk has yielded substantial walls and columns in stratum IVb (PLATE IV). This is a great discovery ; for it means that we now know something not only about the massive towers and ground-plans of the 4th millennium, but also about the developed arts of wall-building and wall-decoration. The date of Uruk IV cannot be put much later than 3200 B.C.

The technique of the clay nail mosaics consists in closely studding the thick clay plaster of the walls and of the round columns of small sun-dried bricks with baked clay nails of about a finger's length. Any child could roll out a clay cone with its hands, and they could be hardened in any domestic hearth. From such small beginnings originated a brilliant invention which served to protect the perishable clay walls from damage by rain, and, in addition, since the heads of the cones were painted either red, white or black, led to the make of

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three-colour patterns. These patterns are obviously derived from textiles and from mat-plaiting in zigzag, lozenge and triangle designs.

The best explanation of the origin of these patterns seems to be that, in a land of reed and clay buildings, the clay walls were lined with plaited mats, as they still are today in Southern Iraq. This custom was perpetuated in the clay nail mosaics, which represent the starting-point of substantial building, as contrasted with buildings of perishable plant-materials.

These splendid buildings surround the 'sacred mountains', and were dedicated in some way to the service of the deity. In size and magnificence they surpass all other buildings of the period. It was, then, the traditional sacred hut, constructed like the others of reeds, that was given this permanent form, so fitting as being the house of the deity. The presence of the deity amongst men was better assured, apparently, if the perishable hut were consolidated in earth, brick and mosaic work. One might perhaps associate this transition to a more permanent kind of building which took place after Uruk vi, with an increase of political power; but we have no independent evidence of such. It is not until Uruk ivb that writing begins, nor can we begin to read it until three centuries later. Political history based upon written documents begins only in the 3rd millennium. The only history extracted from the architecture of Uruk is, at most, the fact of a radical change in building methods as shown by the choice of building-material; this merely permits us to the conjecture that a different people may have acquired control. Thus, quite unexpectedly in v we find foundations of quarried stone, obviously intended for a large building; and in i appears a strange kind of brick, the plano-convex. Of any change of form in the ground-plan we know nothing so far; in fact, in both v and iv we find a type of ground-plan similar to that of the temple on the top of the Anu zigurrat (vi); and the type of wall apparently continued without change. Up to the present, therefore, we are hardly justified in assuming any sweeping political change, but only the possibility of immigration of a foreign element. But in any case the autochthonous element preponderated at all times, even later in the clearer light of history.

The first appearance of writing in ivb, marked also by the first appearance of clay nail walls, and by the great hall of mosaic columns (PLATE IV), must always remain a most outstanding occurrence. There is still no evidence of writing at Uruk before ivb. Then suddenly and without warning there appear fifteen hundred signs and pictographs

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scratched on clay. They seem to have been written and used without any signs of hesitancy. In the next strata they are gradually modified and simplified, until at about the date of Uruk I we have a Sumerian script which we can read. But these early records are political documents only as affording an insight into economic life; as yet they permit of no further deductions.

The seal-impressions on clay fastenings are also connected with the economic life of the times. They range from IV down to still older levels. But the decipherable seal-impressions on pot-, bag- and door-fastenings provide much food for reflection. They comprise not only series of animals, many of them executed with masterly skill, but also a remarkable assortment of heterogeneous creatures, and occasional representations of conquering and vanquished heroes and of buildings like those uncovered by excavation. Before the invention of pictography, that is, of writing, these seal-pictures were the only vehicle for the transmission of ideas, at any rate to the extent that a seal-picture represented the owner and manifested his personality and activities.

At Uruk, then, we have found the parent forms of seals, writing and architecture—a rare stroke of luck.

In III the forms evolved further. Pictorial motives—figures of men and animals, of a gateway, of rosettes—were introduced into the wall-mosaics. These were formed by hand out of clay and then baked, so that, like the clay nails, they could be set in the wall-plaster while it was still soft. Pictorial friezes of this type, made of cubes of coloured stone or shell, occur elsewhere, at Al 'Ubaid near Ur and at Jemdet Nasr near Kish, for instance. These mosaic-pictures, like the seals, represent scenes of peace and war. Now war is an outstanding political event; but the word 'war' exhausts the description; the victor, suitably attired, is represented as bigger and more powerful and is the only one to be armed, the vanquished foe is generally naked and in chains. No ethnic difference between conqueror and vanquished has so far been observed, nor do the Uruk seals help us in this respect.

To III belongs a large collection of dedicated stone sculptures—recumbent rams, bulls and lions and ornamented stone vases—removed during the restoration of a temple. Amongst the vases is a large one of alabaster decorated with horizontal zones set in low relief (PLATE V). This is a cult-object and a work of art of the first importance, for it gives us a glimpse of the interior of a *temenos*. At the entrance the goddess, or rather the high priestess who incarnates the goddess, receives the princes who advance with offerings. This explains a number of

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incomplete seal-pictures. The problem of what went on in the temple is here quite simply and clearly answered :—it was the communion of man with God through oblations drawn from the whole realm of nature, and that not by destruction but by dedication.

We have not been fortunate enough to find in II or I any great interdependent architectural remains or important works of art, such as were found in the strata described above. Nevertheless we found in them valuable evidence of both ordinary and religious life. Our story now advances about a thousand years, to the time of Ur-Nammu, ruler of the 3rd Dynasty of Ur, who about 2300 B.C. enlarged and heightened the zigurrat, giving it the shape which the ruin of today still in some measure retains—a rectangular mass with sloping sides and three ramped approaches, just like the zigurrat of Ur which Ur-Nammu also made.

Already then that ground-plan has developed which 1700 years later was still retained by the Tower of Babylon. At Uruk too this venerable form survived into late Assyrian and neo-Babylonian times, and probably influenced the design of the Tower of Babylon. From the period of Ur-Nammu to that of the Assyrians, about 700 B.C., the temple area of Innin-Ishtar was enclosed by a strong wide battlemented wall, within the confines of which we have brought to light three sanctuaries built on the level, and there is still much to be discovered. Two of these are tucked away into a corner by the zigurrat steps, demonstrating quite clearly that the deity comes from the spirit-world to the earth where it makes its visible abode.

The third temple was built about 1450 B.C. by the Kassite King Karaindash. Here we certainly encounter the work of a foreign people, who from 1750 B.C. ruled over Mesopotamia for 500 years. The temple of Karaindash was still dedicated to the goddess Innin-Ishtar. One cannot even now see any great difference in the ground-plan from those of Uruk VI to IV. The traditional plan lived on for two thousand years. In the north of Mesopotamia, north of Nineveh, there has come to light a very ancient precursor of this type dating from the 4th millennium (Tepe Gawra VIII). It forms a mysterious link between Sumer and the north.

Warka has left us, in this little Kassite temple, not only the first independent structure that is in no way connected with the Akkadian Temples, but, more than that, the first monumental Kassite sculpture we have obtained (PLATE VI). The outside walls have niches in which are placed erect columnar figures. These standing statues of deities

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are set all round, dispensing the water of life which unites them with each other and with earth and heaven. The idea is not new, but its combination with brick architecture, the technique of the brick relief and the style of the single figures, indicate the individuality of the Kassu people, who evidently did not become entirely submerged in the native Sumerian and Akkadian element. These brick reliefs were in complete ruin. Under Dr Jordan's directions the excavators assembled the fragments. In the Near Eastern Department of the Berlin Museums a portion of the temple front comprising eight figures has now been reconstituted. How different a world is this from that of the old mosaic-walls, exhibited in the same room ! And yet these fourth and second millennia are united by spiritual threads which at an even later date were still woven into the style of architecture, sculpture and literature. There can be no doubt but that the ancestry of the wall-structure of the Babylonian, Assyrian and post-Babylonian temples can be traced back to Kassite and even Sumerian architecture ; and that the artistic achievements of the later periods generally can only be explained in terms of the earlier ones. But motives which, in the increasing decadence of the later periods, became barely intelligible, were full of life and meaning in earlier times. Here we can see the origins of symbolism, or at least symbolism in its early stages, when it is still capable of interpretation ; here too we encounter the basic principles of sculpture, principles which derive from the attempt to materialize an idea.

It is not too much to claim for Uruk that it exhibits a clear sequence of four millennia of culture. Noteworthy monuments bring us down to Hellenistic and Parthian times, that is, into the 3rd century before and the 3rd century after Christ. Two of the greatest of the old Mesopotamian temples—the Anu temple (or Temple of Heaven) of Bit-resh, and the temple of Esh-gal on the southern mound at Uruk were built in the Babylonian style, proportions and design only a hundred years after Alexander the Great, and portions of great Parthian buildings, such as the Gareus temple, date from the 3rd century A.D., according to the Greek dedicatory inscription of a certain Artemidorus, who seems also to have founded a temple at Dura on the Middle Euphrates.

Of course the small sculptures, clay figurines and pots found there bear the mark of western influence ; but they have not wholly parted company with the older forms, which survive and turn up again in Christian and Islamic times.

The political changes and events reflected in the monuments here described may best be summarized as follows :—

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After the Kassite supremacy Uruk may be supposed to have passed almost without resistance under the sway of the successive new rulers of the country. These were the Kings of Babylon (about 1000 B.C.), and of Assyria (about 700 B.C.), then the so-called Chaldeans or neo-Babylonians (after 600 B.C.), then the Achaemenid Persian Kings; until, under the Seleucids native rulers were established or tolerated who had finally to give place to the Parthian governors. The city of Uruk, like most Mesopotamian cities, came to an end through the Sasanian incursion in the middle of the 3rd century A.D.—an event which may well be connected with the breakdown of the old system of river-control and canals of the country. The Sasanids built on other sites, as we know from Ctesiphon and Kish. Uruk fell into decay with the drying-up of that branch of the Euphrates which, at the height of the city's prosperity, flowed past it on the east. Ever since then this vast ruin-field, for four thousand years the site of a great city, and inhabited even before that from time immemorial, has lain derelict in the desert. It has its roots in legend. The great Sumerian-Babylonian-Assyrian Epic of Gilgamesh began at Uruk. Here reigned that hero who sought and found his friend, who mocked and spurned Ishtar, braving death and attempting to overcome it, who penetrated to the underworld and then strangely lost the herb of life without solving the problem of death. This epic alone would give Uruk a supreme importance. But there were ruling dynasties who called themselves after Uruk in the 3rd millennium. The traditional cult of the female deity and of the god of heaven must have spread the fame of the city far beyond its walls and boundaries amongst all the peoples of Mesopotamia. Furthermore, in its latest days, under the Greeks and Parthians, it was to Uruk that there resorted all who went out in search of the wisdom of the Chaldeans, of their astronomy, and of a decadent astrology.

But the imperishable elements are those pure springs of knowledge, hidden beneath the great deposits of the 4th millennium, which the excavations of German scientists have caused to flow again.

Art History as a Key to Racial Migration

A New Field for Research

by D. TALBOT RICE

'Les formes ornementales et le système décoratif employé par un peuple ont plus d'importance que des faits ethnographiques ou des particularités d'architecture pour déterminer les relations et les migrations des races'.

THIS statement, made by Curajod some years ago during the introduction to a course of lectures at the Louvre, is definitely provocative, for, however true it may be and however much we can learn from a study of ornamental forms and systems of decoration with regard to trade and intercourse, it has in general proved extremely difficult to correlate the movements of designs with those of definite groups of people, still more with those of definite races. We can, for instance, assert quite definitely that the neolithic pottery of China is closely related to that of the black-earth region of south Russia, but we find it by no means easy to associate the invention or transportation of this pottery with any particular group of peoples, and we cannot even say for certain that the fact that we find it in two so far separated regions can be regarded as proof of any very considerable racial migration. Such a migration does, indeed, seem the most satisfactory way in which to explain the relationship, but it can also quite satisfactorily be accounted for by the conquest of one region by a small minority from the other, or of both by a small minority from some common centre, who imposed the imported style on the new possession.

An examination of the aesthetics of this pottery does, however, suggest that a further conclusion is possible. The style of this early pottery is extraordinarily distinct,¹ and it would seem that it must not only have been designed and developed by a people with an equally distinctive turn of mind, but also have been acceptable only to those

¹ For a brief study of it see Bachofer, *Burlington Magazine*, Dec. 1935.

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peoples who thought and reacted in a similar manner. The study of racial aesthetics is as yet in its infancy, but we are already coming to realize that certain types of art are not only characteristic of certain regions, their nature being determined by climatic and other geographical factors, but also that certain types of art are definitely to be associated with certain groups of peoples. Worringer, in his book *Form in Gothic*, has convincingly suggested that the twirling, searching linear feeling and ornament which we can trace on Gothic sculptures of the 12th century, and which we see more clearly in the early Christian carvings of this country and of Scandinavia, or in the pagan bronzes of north Germany, is to be attributed to the tall, fair, long-headed inhabitants of northern Europe. Not only are the people to be regarded as the carriers, and probably also as the inventors of the art; further, it may be said with a considerable degree of confidence that the art is essentially a part of the make-up of these peoples, and that it only found favour where their blood had penetrated to a marked degree.

We can suggest that the neolithic pottery of China and the black-earth regions is to be associated in a similar manner with a group of peoples who are not only distinguished by a particular art, and hence a particular method of thought, but also by a particular racial type. In the present state of our knowledge it is, however, more difficult to make a suggestion as to what that type actually was; it may be said with practical certainty that it was not a branch of the Indo-European group, for members of that race have always favoured an art of a very different character, where naturalism and the use of the human body as the principal model are outstanding characteristics. That the similarity is not to be accounted for by trade alone we feel convinced, for it is of far too intimate a nature to have been conveyed in so superficial a manner.

It would seem, in fact, that three explanations of similarity in art are to be distinguished and that three methods of contact are to be regarded as responsible for them. In the first, motives of decoration or even actual objects characteristic of a particular art are copied in another region, to which that art may well be completely foreign in content and outlook. The copying is thus direct and superficial, and is usually done with little understanding. The motives may be conveyed by trade, or the copying may be due to the insistence of a patron, perhaps a member of a conquering aristocracy; but no considerable migration takes place, and the peoples of the two areas concerned are almost certain to be of completely different racial stocks. The imitation

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of oriental textiles or ceramics in the Italy of the early Renaissance or the later Middle Ages may be cited as an example.

In the second type motives are copied and the style and feeling of the art is in addition fully assimilated, the peoples of the area where it is intrusive not only finding in it something which is an attractive design or shape which they wish to make use of, but also sensing in it something which is in close accord with their own particular aesthetic understanding. In this case trade, conquest or migration may account for the similarities, but the essential factor is that the peoples of the two regions concerned must have the same mental outlook. When research has been carried further we shall doubtless come to realize that they must also be of the same physical stock. The taking over of non-representational art by the majority of the Islamic world from the Semites of northern Arabia may be cited as an example.

In our third group the essentials of the art—motives, style, content, approach and aesthetic understanding—all are common to the two areas, though in each of them there are probably certain superficial differences. In this case the similarities are almost certainly to be accounted for by migration, either from one area to the other or from a common centre to both, while the dissimilarities are due either to locality, to the influence of an older culture which is different in the two regions, or to the influence of different waves of culture which are superimposed from outside, and which exercise an influence either in the first or the second manner that we have distinguished above.

As far as the correlation of art and racial migration is concerned, this is the only one of the three groups that is important, and it is here that a wide field for research opens itself before us, both with regard to establishing the exact nature of the similarities which are to be classed under this head, and with regard to the association of particular cultures and art systems and with particular racial groups. In this latter respect a vast amount of investigation, which takes into account at the same time archaeology, ethnology and the study of art history and aesthetics, will have to be undertaken before much can even be suggested, let alone affirmed. But with regard to the former, the field is already ripe for the suggestion of certain conclusions, if archaeologists are wise enough not to scorn the art-historians and if the art-historians are prepared to equip themselves as archaeologists. This paper may hence be excused as an essay in a new field of archaeological aesthetics. It may, further, be justified by the fact that it includes some notes on the find made recently at Pasirik in the Altai, which has so

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far only been noticed but briefly in the periodical published by the organisation G.A.I.M.K. in the U.S.S.R.²

Scythian art³ is not only one of the most distinctive art-forms that the prehistoric world has given us, but it is also one of the most significant. It is in a sense a primitive art, but it is at the same time extremely elaborated. It offers us, in fact, an amazingly successful combination of non-naturalism and vital energy, of rigorous stylization and the highest verisimilitude, and it would no doubt seem to us equally successful even if the majority of the objects by which we know it were not made of gold. The material does, perhaps, make the art more surprising, as those who have visited the vaults of the Hermitage fully realize, but its richness of material can hardly have affected the judgments of most of us in the west, who only know the art through photographs. A stag from Kostromskaya Stanitsa, in the Kuban, of the viith or viith century B.C. may be cited as a typically and wholly admirable example (FIG. 1). We see in it most of the characteristic features of Scythian art, the doubling of the legs under the body, in what has been called the flying gallop, the stretched-out neck, the conventionalized antlers, which give a superb effect of speed as they lie along the back, and the curious use of part of some bird or animal, in stylized form, to decorate the whole. This use of the part is a fundamental feature of the art, and is, when well done, successful and pleasing. When Scythian art comes under Greek influence, however, as it often did in south Russia after the viith century B.C., the results of this practice are not always so happy, as is proved by a stag from the Crimea of the early fifth century (FIG. 2). Here the naturalistic, non-stylized approach of the Greek has become confused with the stylized aesthetic understanding of the Scythian, and the stag is covered with fairly exactly rendered animals and birds, which seem singularly out of place, and suggest that the artist had wished to show the main animal dressed in some stuff which bore a naturalistic ornament—and this he very definitely did not set out to do.

In his numerous writings on the subject Rostovtzev has suggested that Scythian art is to be regarded as the result of the penetration of

² See no. 2, February, 1931.

³ We here use the word broadly to describe the whole group, from Hungary on the one side to China on the other. It should in actual fact be limited to describe a branch of the art in south Russia, which flourished between the viith and 19th centuries B.C.

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what he calls the animal style into south Russia and Siberia from outside, and he suggests that the style was first conceived in Mesopotamia and that it travelled northwards from there by way of Iran, where it was much developed and altered, so that only after its passage through Iran did it take on its characteristic form.⁴ It was, after this, further developed in the Scythian-Altai region, but the influence of this region was not fundamental; it was exercised from above, on an art already three parts formed. If this explanation be true, it is the motives and systems that belong to Iran and Mesopotamia, the animal combat (FIG. 3), the stylized bird-beast, the polychrome treatment, or the pierced work (FIG. 4) that are the essentials of the art, while the elements that are proper to the region to the north, the stag, the reindeer (FIG. 1), the stylized birds, the closely confined composition, or the use of portions of birds and animals to decorate the whole ones, that are to be regarded as intrusive.

Borovka, on the other hand, regards the style as in the main a derivative of the old stone age arts of Russia, Scandinavia and Siberia.⁵ For him it is the essentially northern elements that are fundamental, while the Iranian or Mesopotamian ones are to be regarded as later additions. There can be no doubt but that Borovka is correct, and this for various reasons, both practical and theoretical.

In the first place an examination of the nature of the art shows quite clearly that it is one that is proper to certain materials, such as bone, hard leather or wood of limited size, which permit of sculpture on a small scale and in low relief or of a very thin three-dimensional rendering, but not of large scale work, high relief or full modelling. The elimination of any projections, the use of the flying gallop with legs parallel to the animal, and the laying of the antlers along the back; all prove that the initial material was both limited in size, and, unlike the gold, was so fragile that projections would easily be damaged, and hence had to be avoided. Though in the gold the presence of projecting horns or of legs in the standing position would have presented fewer difficulties and complications, the old rigorously bounded design was retained through conservatism, and only in a few late examples was the neatly bounded contour departed from.

There can be no doubt as to the nature of the prototypes of the art; they must have been akin to the small objects in non-precious materials

⁴ See especially *Iranians and Greeks in South Russia*, Oxford University Press, 1922, *passim*.

⁵ *Scythian Art*, trans. by V. Gordon Childe, Benn, 1928, *passim*.

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of which Borovka has already published examples.⁶ Such objects were executed in wood, leather and bone, and their manufacture in these materials continued long after the use of gold had been gradually adopted. The rich man and the chieftain might have his gold, but the poor man continued to use less precious materials, and the trappings of his horses, his saddles, his bridles, in fact, all the objects that he used, were profusely ornamented. Many of the trappings of the wealthier man's horses, too, were undoubtedly also of cheaper materials, and the Pasirik find has acquainted us with a considerable number of them, which were preserved beneath the ice level as if in cold storage. These objects not only serve as additional proof of the simple inspiration behind the gold work, but they also show that the stags and the features of the art that are essentially northern belong to the fundamental, not to the superficial strain.

These conclusions are further borne out by the content and understanding of the art. It has something distant, something almost ascetic about it, in its strange blending of convention and verisimilitude, which seems to be an essential of the region to which it belongs, the steppe and tundra of central and northern Eurasia. Its whole spirit is quite foreign to a mountain area or to a hot, sunny region. In Iran, on the other hand, we find a conception which is certainly akin, but the art is much more mystic, yet at the same time more material. The lion and bull combat, which is undoubtedly Iranian, is typical of this. It is conceived as a mystic symbol of the struggle between the powers of light and darkness, yet it was no doubt originally portrayed with the practical purpose of assisting the eternal struggle along its inevitable course.

If further proof of the northern character of Scythian art be needed, it is furnished by another feature of the Pasirik find. In this burial, which is dated by Russian archaeologists to between the fifth and fourth centuries B.C., a number of horses were interred in the manner usual among primitive nomads around the principal coffin. These horses were, however, dressed up as reindeer, large head-dresses of leather fashioned in the form of antlers being attached to their heads. There can be no doubt as to the purpose of these; the reindeer was originally the beast on which the culture of the people depended; it was their beast of burden, their source of food, their very source of life; so important was it that it may well have assumed a

⁶ *Op. cit.*, pls. 59, 61, 62 and 63.

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semi-religious character. At a later date, when the reindeer first became rare and then extinct, its role in the everyday life of the society with which we associate Scythian art, was supplanted by the horse, but its memory lingered. It remained a necessary accessory of the future life, even if it could be supplanted in the life of this world, and so the horse substituted for it had to be disguised as a reindeer in order to accompany a chieftain on his journey into the world of the future.⁷

In view of this it seems impossible to doubt the indigenous character of Scythian art. The Iranian elements must be intrusive. They penetrated, however, at an early date, and soon became so intermingled with the original features that it is often hard to distinguish them. On one of the textiles from the Pasirik grave, for instance, there appears a rendering of that creature with bird's head and wings which at a later date became something approaching the emblem of the Sasanian-Iranian world, and though it was a motive foreign to the north, it was easily understood and soon found a ready home there.

With these facts as to the nature of the Scythian art established, it is not difficult to see that wherever we find it, it is the Scythian element that is fundamental. In the Kozlov materials in the one direction there is little that is Chinese (FIG. 5). The stuffs might well have come from the central portion of the Scythian sphere, though they are in actual fact paralleled in their own locality by numerous other objects of the same character. In the Zoldhalompusztá stag from Hungary, in the other direction, the Scythian character is equally basic (FIG. 6). The stag differs from its more easterly relations in that the extremities are more prominent and in that it is treated less as a whole—the departure from the primitive bone technique is, in fact, more complete—yet it is entirely Scythian in essence.

In both these instances it is the fundamentals of the art that are constant and the superficial features that vary. Both examples are essentially Scythian and they show us, geographically speaking, the opposite extremes of a family of art which was at one time characteristic of practically the whole of the region in between. There is no possibility that the similarities are to be accounted for by trade or similar spasmodic intercourse between the distant regions; an object can be copied, but a whole art cannot be assumed in this way. Nor is the

⁷ See Soobshtchenic, *G.A.I.M.K.*, February 1931, nos. 1 and 2, more especially p. 10.

PLATE I



FIG. 1. SCYTHIAN ART: GOLD STAG FROM KOSTROMSKAYA STANITSA, KUBAN, 7TH-6TH CENT. B.C.
(*Hermitage, Leningrad*)

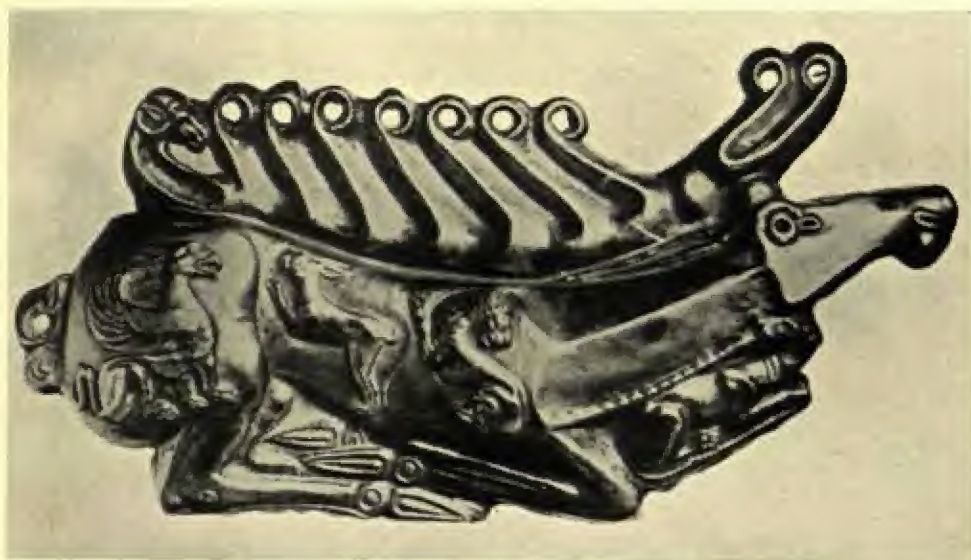


FIG. 2. SCYTHIAN ART UNDER GREEK INFLUENCE: GOLD STAG FROM THE CRIMEA, 5TH CENT. B.C.
(*Hermitage, Leningrad*)

PLATE II



FIG. 3. SCYTHIAN ART UNDER IRANIAN INFLUENCE: ANIMAL COMBAT (IN GOLD)
FROM LIBERIA, 3RD OR 2ND CENT. B.C.
(*Hermitage, Leningrad*)



FIG. 4. SCYTHIAN ART UNDER IRANIAN INFLUENCE: GOLD-PIERCED WORK 3RD OR 2ND CENT. B.C.
(*Hermitage, Leningrad*)

PLATE III



FIG. 5. QUILTED CARPET FROM NOIN-ULA, MONGOLIA, 1st CENT. A.D.
(*Hermitage, Leningrad*)



FIG. 6. STAG 'SCYTHIAN' STYLE, FROM ZOLDHALOMPUSZTA, HUNGARY
(*National Museum, Budapest*)

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identical character of the art over this vast area to be accounted for by the second type of connexion that we distinguished, that of conquest. The essentials of the art are far too deep-seated, both in the chieftain's gold and in the poor man's horse trappings, for that to be possible. The third type of connexion that we suggested, that of a considerable cultural migration, is the only explanation that will fit the case.

So far the study of the nature of an art can guide us. It shows us, even further, that cultural migration is probably to be associated with a racial one, and that the migration which carried it in the first instance is definitely not to be associated with any of those movements of peoples of Indo-European type which were taking place between about 1500 and 600 B.C., since the initial character of the art is quite foreign to that which we can associate with this race. Later, when Iranian forms had become superimposed, Iranian peoples may well have carried the mixed art, but they did not originate it or carry it in the first instance.

To hazard a suggestion as to the nature of these first carriers is to tread on very dangerous ground, but one hint as to the solution is available, namely the close relationship which the proto-Scythian bears to the proto-Scandinavian, and which it bears in fact to the primitive art of all northern Europe. Here again the art would seem to be indigenous, and if this be the case, the peoples who practised it must have been closely akin to the Scythians and proto-Scythians. To affirm that they were Nordics would certainly be stretching the point too far; but to suggest that they were of Nordic stock, akin to the modern Slavs, with a slight Mongol intermixture, does not seem an unreasonable conclusion.

Law and Archaeology

by H. J. RANDALL

1. CIVILISATION AND THE GROWTH OF LAW. By William A. Robson, Ph.D., etc. London: Macmillan & Co., 1935. pp. xv, 354. 12s 6d.
2. PRIMITIVE LAW. By A. S. Diamond. London: Longmans Green & Co., 1935. pp. x, 451. 25s.

IT is a curious and pleasing coincidence that these two books should have been published within a few weeks of one another, because they are a demonstration of the increasing attention now being paid in this country to historical jurisprudence. In spite of the influence of a few great personalities English lawyers have not been distinguished for their interest in either the theory or the history of law. The practical lawyer considers these subjects 'academic', and no more damaging epithet could be applied to them. Nevertheless there are many signs that this mental attitude is being insensibly modified, and books of this character are a demonstration of the fact.

Their subjects are to some extent different, and it must be added that their merits are by no means equal. Dr Robson's work is entitled *CIVILISATION AND THE GROWTH OF LAW*, but its subject-matter is not so wide as the title would imply. The theorem underlying it is that there are definite relations between the ideas of mankind about the Universe in general and their ideas upon law and government; that legal and political institutions have been influenced by cosmic ideas; and that law has exercised a reciprocal influence upon philosophy, religion, and science. The subject does not lend itself to very definite treatment; but an indefiniteness seems to hang over Dr Robson's book that is not entirely attributable to its matter. Matthew Arnold once spoke of F. D. Maurice in something like these words: 'He spent his life beating the bush with deep emotion, without once ever succeeding in starting the hare'. Dr Robson never seems to get his hare started and his book leaves a lack of impression on the mind. It contains a great deal of interesting and relevant matter, the exposition is clear and adequate, but the chapters just stop, and one never seems to arrive.

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This may be due to the fact that Dr Robson has not succeeded entirely in making up his own mind. There is an illustration of this as early as the second chapter. This deals with the origins of law, and the brevity of the exposition is a just measure of our ignorance of the subject. In this chapter the author quotes with apparent approval the views of Professor Malinowski as set forth in *Crime and Custom in Savage Society*.

'We must', he says, 'abandon the idea of an inert solid crust and cake of custom pressing rigidly on tribal life from outside. Law and order arise out of the very processes which they govern. The assumption of mechanical and slavish obedience to custom by savages is entirely false' (p. 12).

'There must be', observes Professor Malinowski, 'in all societies a class of rules too practical to be backed up by religious sanctions, too burdensome to be left to mere goodwill, too personally vital to individuals to be enforced by any abstract agency. This is the domain of legal rules' (p. 13).

Then in the succeeding chapters Dr Robson proceeds to discuss the relations of early law with magic and religion upon the general lines expounded by Maine and his followers. For example:—

'Since law in early society is generally believed to have come directly from God, it would seem likely that we should find no clear dividing line between law and religion. . . In the early ages of mankind, law and religion were often so closely interwoven that it is scarcely possible to say where one begins and the other leaves off' (p. 38).

In these later chapters there appear to be no further references to Malinowski, and it does not seem to have occurred to the author that the two views flatly contradict one another. Either Maine or Malinowski is right, but they cannot both be right.

In fact Dr Robson's book (as it appears to the present writer) suffers from two weaknesses. The first is an insufficient appreciation of the method and results of archaeology. Those indefinite words 'early' and 'primitive' are of constant occurrence, and there seems to be no clear differentiation of the periods of human culture. Consequently illustrations are gathered from peoples who were really living in different stages of development, and are used indifferently as examples of primitive conditions. It is as if a geologist were to gather fossils from both the lias and the mountain limestone, and use them both as examples of primitive life. If the lawyer is to disinter the stratification of legal rules, he must first clear his ideas on the stratification of human

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society, and must recognize that 'primitive' is no longer a word of precision.

In the second place, all partial attempts to explain the relations of human society suffer from their partiality, however necessary such division may be on account of the infirmity of the human mind. The general principle of the relativity of law may be taken as established. We no longer regard law as a thing in itself, much less as an emanation of the divine ; but it is a product of the whole environment of the society, economic, political, geographical and mental, in which it has its being. But there are grave opportunities for error in separating one influence from the totality of all the influences. It may be necessary to do so in order to make a thesis manageable, but the danger of exaggerating the particular influence selected is great. If the principle of the influence of man's cosmic ideas upon law has any great validity it should be examined in more detail and perhaps in a smaller field. It may then be found that economic or cultural conditions really account for things that might otherwise be attributed to cosmic ideas. One does not find that a practical lawyer dealing with a concrete case pays any great attention to the Universe with a capital U.

In one respect it is most unfortunate for Dr Robson that Mr Diamond's book should have been published at the same time. The whole of the first part of Dr Robson's work is concerned with the close relationship between early law and religion ; and the whole of the first part of Mr Diamond's in demonstrating that the alleged connexion has no existence.

We do not hesitate to say that PRIMITIVE LAW is the most important work that has been published on its subject during the present century, and its ramifications extend so far beyond the technicalities of legal studies, that we make no apology for discussing it at some length in the pages of ANTIQUITY.

The first part of the book is the clearing of the foundations, the second the erection of the new building. In the first part Mr Diamond seeks to demolish the theory of the religious origin of law, and takes as his target the early chapters of Maine's *Ancient Law*. Maine's theory was that 'in the beginning' rules of law, religion and morality were not differentiated ; that at later stages of mental progress these several things were gradually and painfully separated from one another ; but that early law always retained from its association with religion a love of formalism and technicalities. Mr Diamond will have none of

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this. His view is that primitive law was entirely secular and free from formalism, and that the evidences 'show a clear picture of true primitive law giving way, in the course of time, to rules of mixed law and religion' (p. 63). In other words the admixture of law and religion is the second stage, not the first, and is due to the power obtained by organized religion administered by a priestly hierarchy.

Perhaps an unrepentant Victorian may suggest that in this matter the author is hardly fair to the greatest of our historical jurists. He treats Maine in effect, though not in words, as a contemporary writer. The real difference may be attributed to the ambiguity of that unfortunate word 'primitive'. Maine's *Ancient Law* was published in 1861, but was founded on lectures delivered at Cambridge during the previous decade. At that time anthropology was an infant science—in fact its adolescence can be dated conveniently from the publication of Tylor's *Early History of Mankind* in 1865. Now it is quite easy, in spite of his deliberate habit of clearing away his scaffolding, to infer Maine's sources. They consisted of classical literature, the Barbarian Codes, the Laws of Manu, and occasionally the Old Testament.¹ In *Ancient Law* at least he never quotes from the usages of any savage tribe, because such evidence was not available for him. The Code of Hammurabi, the laws of Gortyn, the Babylonian and Assyrian texts, had not been discovered, and the Viking sagas had not been properly edited. The society of the Homeric poems was 'primitive' to Maine, but is not so to Mr Diamond and ourselves. As Maine himself hints, his theories 'may be considered as true, if not of all mankind, at all events of all branches of the Indo-European family of nations' (*Ancient Law*, p. 11). The differences between Maine and Mr Diamond are differences of aspect, not of principle. The strata of civilization from which Maine drew his modest and tentative picture of primitive man are to Mr Diamond no longer primitive. The point is quite obvious and it is a pity that Mr Diamond never mentions it.

However that may be, Mr Diamond's demolition of the religious theory is extremely thorough and competent. It would be out of place to give any details here, and it must suffice to say that he produces an extensive body of evidence to prove that in the earlier times to which records extend, legal rules and procedure were secular,² and that the

¹ The textual study of the Old Testament and of other authorities was then in a quite unadvanced condition. It is possible that Maine inferred the early admixture of religion, law and morality from the Ten Commandments.

² For example, the king sitting in the gate to determine disputes.

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religious influence was a later accretion. Here is a challenge of the most definite and positive character, and anthropologists must survey the evidence afresh in the light of it.

The second and constructive portion of Mr Diamond's book is a history, necessarily in outline, of the development of primitive law. In it, the author, rightly or wrongly, has tied himself down to a strict and rigid theory. He correlates the development of law to the material or economic position of the peoples concerned at all times and in all places. He does not say that the rules observed by different peoples on the same cultural plane are identical in detail, but that the main features, which cover the greater part of the field of law, are always the same. Human development is tabulated in a neat scheme in which the two hunting peoples, the First and Second Hunters, form one line; the First and Second Pastoralists, another; but the main line is the agricultural divided into three principal stages, A_1 , A_2 , and A_3 . After the third agricultural grade, from which the greater part of the evidence is gathered, comes the period of Codes. This is subdivided into Early Middle and Late, and the Middle period is again subdivided into Early Middle, Central Middle and Late Middle. Every one of these stages has its appropriate legal system which is conditioned and controlled by the level of material development, but is in its main features the same for all societies on the same material plane. The author then proceeds to work this out in detail for each of the principal sub-divisions of the field of law.

It would need a large book, and a competence and knowledge at least as great as Mr Diamond's, to criticize a scheme so revolutionary and comprehensive. All that can be attempted here is to set forth a few observations that occur upon a first perusal.

The scheme seems too tidy to be true. Nature is a terribly untidy old lady; life is an untidy business from beginning to end; and as every historian knows, his chief difficulty is to reduce any period to any kind of order. A scheme like this, almost German in its beautiful neatness, makes one suspicious from that very fact. In every scientific discussion the important matters are the exceptions to an alleged rule, and Mr Diamond is somewhat inclined to ignore them.

To take an example. Mr Diamond treats the important subject of inheritance as springing out of the law of marriage. It is an excellent example of his insight that he should do so. It is very well worked out upon the two systems of patrilineal and matrilineal descent corresponding to patrilocal and matrilocal marriage. Suddenly the author comes

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across a formidable exception. It is the system of ultimogeniture, or the succession of the youngest son, which by an historical accident has acquired in English law the curious name of Borough English. The system is widespread, though neither its origin nor its geographical distribution have yet been determined satisfactorily. It will not fit into Mr Diamond's system in any manner, and he has evidently not studied it at all. He merely refers to it in a footnote in these terms (p. 238):—

‘Perhaps equally strange is the rule of Borough English, by which, until the other day, land in certain boroughs descended to the youngest son’.

This is not even accurate because ultimogeniture in England is not confined to ‘certain boroughs’ but has a wider distribution as a local custom of descent; and furthermore it is not a scientific procedure to relegate a major difficulty to a footnote. Mr Diamond has made many criticisms of Maine who wrote in 1861: his own treatment of ultimogeniture has not advanced beyond that of Blackstone who wrote in 1761.

The English lawyer will at least be surprised at the place occupied by his own law in this neat system. He will learn that, without possessing any code after the Conquest, it reached the period of the Central Middle Codes about 1075 (Domesday, 1086). So rapid was the development that it had advanced to the Late Middle Codes, corresponding to the Pentateuch, by 1160, and in another twenty-five years, by 1185, it had reached the stage of the Twelve Tables. Sixty-five years later it had passed through the whole period of the late Codes, reaching the level of the Assyrian laws by 1220 (Magna Carta 1215) and that of the Code of Hammurabi (1914 B.C.) by 1250. At that point the history of primitive law ends and that of mature law begins. Yet the whole of this astonishing and breathless movement has been entirely hidden from the eyes of our most competent legal historians like Maitland, Sir Frederick Pollock, and Sir William Holdsworth. In their ignorance they have treated the whole of it under the one rubric of the Feudal Laws. It would be instructive, as it would certainly be entertaining to hear the views of a competent medievalist upon this comparative view. If it is to be accepted our ideas must be revised from the foundation upwards. This at least can be said with confidence, that it has never yet entered the mind of anyone to call the great and comprehensive work of Bracton (c. 1250–6) a treatise on primitive law, nor to classify Magna Carta as a document of that character. To such lengths can an acute mind be driven by the limitations of a rigid theory.

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The question of geographical control does not enter into Mr Diamond's scheme at all. No doubt he would contend that the facts of geography are merely conditions of material development. At least he treats all his primitive peoples from all parts of the world as passing through the same stages of material culture, and therefore the same stages of legal development. Unless the work of the geographers has been greatly misconceived this must be a simplification obtained at the expense of accuracy. A West African native obtaining an easy living by tropical agriculture may be to outward seeming at the same stage of material development as a Highland crofter maintaining a miserable existence by incessant toil. But no one who regards the facts of life instead of the requirements of a theory would place them in the same category. There are regions of abundance, of plenty, of effort, and of misery; regions of isolation and of good communications, and to treat factors of climate, soil and situation as irrelevant details is surely to darken counsel. Consideration of geographical control does not produce neat results, but to suppose that truth is always neat may be no more than a superstition of the logicians.

Mr Diamond (p. 180) does not exclude the influence of a higher civilization upon a lower with which it comes into contact, but in working out the details he treats that influence as almost negligible. The standard example of such an influence is that of the Mediterranean civilization upon the barbarian invaders of the Roman Empire. Of the influence of the lower culture upon the higher there is abundant evidence in the progressive deterioration that took place during the centuries of the 'Decline and Fall' when the barbarian pressure was constantly increasing. The question at issue is whether the barbarians progressed in legal ideas purely on account of the stages that they successively attained in material culture; or whether they borrowed from the civilization with which they were in close contact. Much of it they could not borrow because it was above them, or, in other words, their borrowings were limited by their power of assimilation. It is beyond doubt, as the author rightly points out, that the rediscovery of the Digest of Justinian and the rise of the school of the Glossators at Bologna under the leadership of Irnerius at the beginning of the twelfth century was an event of capital importance in the history of European civilization; but it is quite another matter to assume that this was a sudden revolution unheralded by any previous development.

In other directions we know that the barbarians borrowed much. Carlyle's *History of Medieval Political Theory in the West* is little else

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than a history of such borrowings. The Church preserved all that it wished to preserve of the classical authors and tradition. Our own Venerable Bede, writing in the darkest of the Dark Ages, owes everything except his own genius to the remembrance of the ancient world. Is it then reasonable to assume that in the important department of law nothing was borrowed? The great German jurist Savigny devoted his chief work to prove the exact contrary, and since his time the steady influence of Roman law upon barbarian usage has been an accepted fact.³ If he wishes to upset this conclusion Mr Diamond will be faced with the results of a century of careful scholarship. Once the fact of borrowing is admitted, the whole of his conclusions as to Europe in the Dark and Early Middle Ages will need revision, because the native growths must be separated from the borrowings, and until that has been done no certain conclusions can be drawn.

In presenting these disjointed observations we have no wish to detract from the great merit of Mr Diamond's work. A book so original invites and deserves criticism, and all honour is due to an author who has the courage and scholarship to produce a new synthesis of legal history. It deserves to be a landmark in the studies to which it relates.

³ The most accessible work in English is the volume entitled *General Survey* in the Continental Legal History series. There is an admirable chapter by Professor H. D. Hazeltine entitled 'Roman and Canon Law in the Middle Ages' in the *Cambridge Medieval History*, vol. v.

The Work of Giants

by O. G. S. CRAWFORD

'I see you are hedging. That's what all the people complain of. You are hedging in all the country'.—JACK THE TINKEARD.

OF their kind there are few things more beautiful than the field-walls in a stony country. They are constructed, as a rule, without mortar, and for that reason are called 'dry stone walls'; the term is useful, as a distinction, and will serve, but many of them are reinforced by an admixture of earth, or of a kind of daub that sets fairly hard. The walls of the moister West Country are the most beautiful of all, for innumerable plants take root in the earthy crevices and enrich the lovely grey stonework with a natural ornament that is entirely pleasing. Vivid green splashes of pennywort, yellow stars of celandine, clusters of violet, and the twisted white cords of ivy are Nature's version of carved vine-scrolls and interlaced designs, with the added beauty of colour. Far be it from me to institute odious comparisons between the works of Man and of Nature; both are good to look upon, and I yield to none in admiration of the masterpieces of Anglian sculpture. But these, alas, are few and far between; they are not always accessible or easily seen; whereas there are, by way of compensation, hundreds of miles of most enchanting field-walls in Cornwall alone. I began my study of them without fully realizing their aesthetic qualities; when my eyes were opened I found it difficult to look at anything else.

At first I did not realize the amazing variety of types that occur within a small area. To a great extent the type is determined by the natural character of the stone that occurs in the district. Obviously in a slate country the walls will be different from those in granite regions; but even within the granite region there is endless variety. The walls may consist of huge 'grounders' whose triangular interstices are filled with smaller stones (PLATE II); but these may be laid flat or edgewise. The latter method is a modern innovation, and its presence is a sure sign of recent work; but I do not know when it was first introduced. Some walls are entirely built in this way, from bottom to top; such are likely

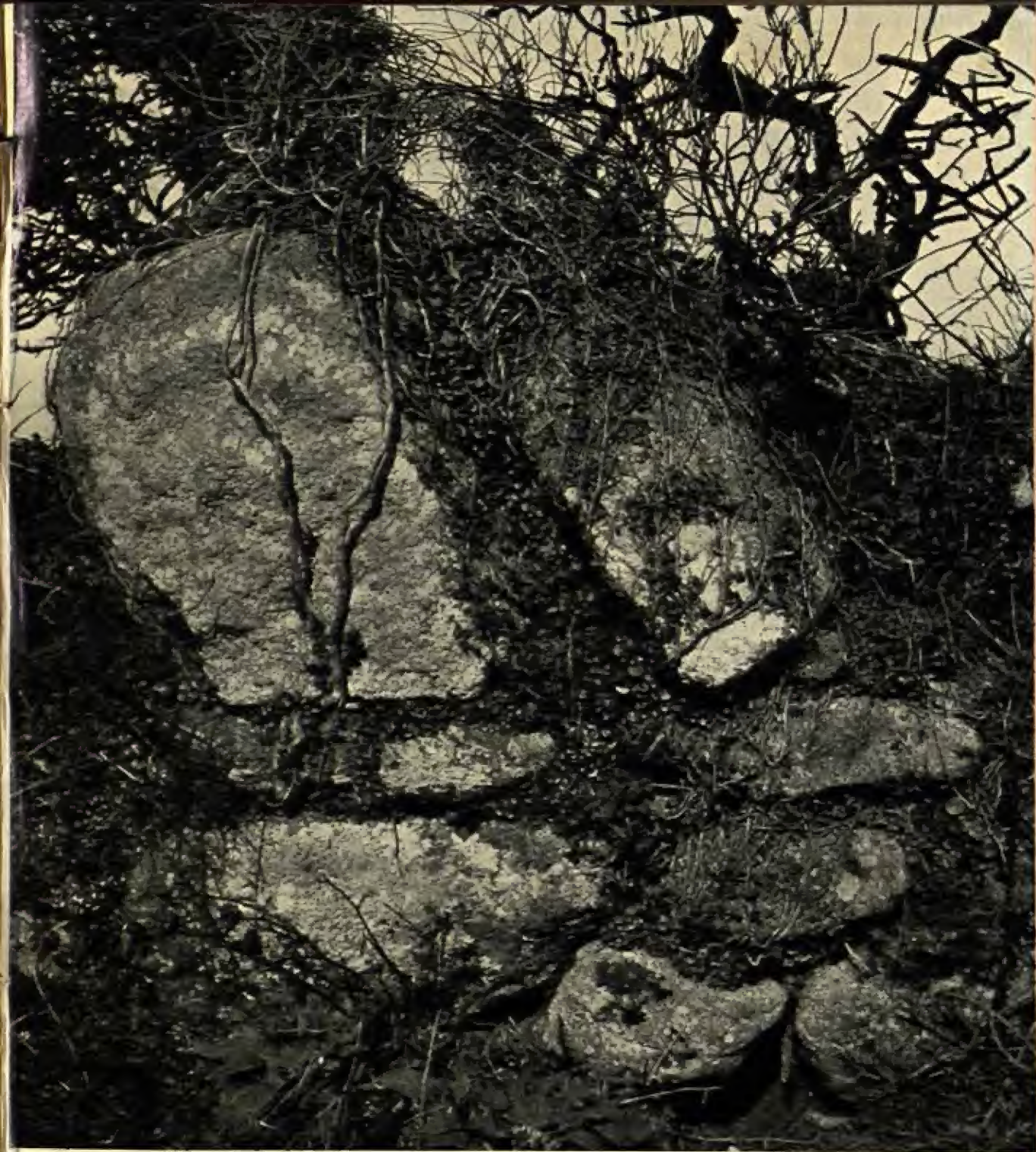


PLATE I

RAMPART-WALL OF ROUNDAGO, CASTALLACK

Ph. O. G. S. Crawford

facing p. 162

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to be quite modern, though the rapid growth of lichen and plants gives them a deceptive, if pleasing, air of antiquity (PLATE III). Walls in the West age quickly but live long.

The 'grounders' are often of huge dimensions and represent the boulders that were strewn over the surface before it was first cleared.¹ No one deliberately goes in search of such huge rocks to make a mere field-wall; at any rate he does not go far. Smaller stones, such as are always available close at hand, would serve the purpose just as well, and often were used exclusively. In some parts it is quite usual to find every wall² built with grounders set close together along the whole length. The labour involved must have been considerable, and it has a corollary; no one will lightly destroy such a wall. Alterations may be made here and there; small fields may sometimes be converted into large ones by the destruction of an intervening wall. But the original plan will persist. This is a safe assumption, and it is borne out by the disposition of the modern fields round the Iron Age village of Chysauster (parish of Gulval). Here, as has already been pointed out, are small lynched cultivation-plots (probably gardens) adjacent to the huts; but there are also larger ones, divided by walls full of grounders. The amount of lynching is considerable, and testifies to a very long period of cultivation, down into modern times. There was, it is true, a farm here as early as 1313 (called Chysalvestre, the house of Sylvester),³ and it might be argued that the lynchets were first brought into being by the ploughing of one Sylvester in the Middle Ages. But I do not think so. For although the (presumed) prehistoric lynchets coincide for the most part with the modern field-boundaries, they do not invariably do so. There are traces of ancient lynchets running across some of the modern fields, indicating (as we anticipated above) an enlargement of the field; and there is at least one big lynchet below an uncultivated area which has the appearance of having been waste land for a very long time. Moreover the shapes of the fields that lie at a distance from the prehistoric village are different and suggest a different, later, design.

I had hoped, in the first moments of enthusiasm, to find some criterion by which to distinguish really ancient field-walls from later

¹ See *Popular Romances of the West of England*, by Robert Hunt, 3rd edn., 1881, p. 56, note. I have made extensive use of this delightful and fascinating book, and shall refer to it in later references by the author's name only.

² Hunt calls them 'hedges', a local term and in many ways a better one; but the modern connotation of 'hedge' is narrower, and I have therefore not used it here.

³ Hencken, *Archaeology of Cornwall and Scilly*, 1932, p. 133.

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ones, but on the whole I was not successful. One feature, however, seems to be a fairly trustworthy indication of age. Walls which contain grounders beneath a confused and massive pile of collapsing material seem likely to be very ancient—partly, of course, because walls tend gradually to disintegrate, partly because a wall of substantial bulk may reasonably be assumed to date from the original clearing of the area. When such 'collapsed' walls occur (as in the St. Ives district) in a region of old settlement, we may adopt the working hypothesis that they may be, in part at any rate, prehistoric.

On stony ground the process of collapse is assisted by the formation of negative lynchets which undercut the foundations, causing subsidence. The wall then assumes a dilapidated aspect, is full of repair-patches, and becomes in part a retaining wall for the soil above. This is a noticeable feature of most of the modern fields round Chysauster, some of which probably enclose the same areas as the ancient ones (PLATES IV, V).

A study of the six-inch Ordnance Maps of western Cornwall reveals certain interesting features about the field-systems. In certain regions the fields are of irregular shape, the walls are never geometrically straight and are usually curved, and the area enclosed tends to be a small one. In others the pattern approximates to a rectangular lay-out, and the walls are geometrically straight. Compare, for instance, the fields on the Atlantic foreland between St. Ives and Zennor (Cornwall, sheets 61 SW, SE ; FIG. 1) with those on Connor Downs (62 SE) and Treswithian Downs (62 NE). Or, within the same area and geological formation, compare the rigid framework recently imposed upon Lady Downs and Conquer Downs, and the plainly modern enclosures of Georgia, with those of Amalveor, Embla, Foage, Bodrifty (68 NW), Mulfra and Chysauster (68 SW ; FIG. 2). In the case of Amalveor and Embla we seem to have a progression marked by sweeping curves of intake from the downs ; and it looks as if, after the area thus taken in had been demarcated by a boundary-wall, it was then gradually cut up into smaller fields.

I do not suggest that the irregular system is prehistoric or even that it is as old as medieval times in every case, merely that it is older than the rectangular lay-out. In a group of irregular fields, moreover, the oldest walls will presumably be those of the first big intake and of the smaller fields within it—those nearest to the original settlement. If that settlement was founded in prehistoric times then the walls of the home closes will be, presumably, of prehistoric origin. I have already given reasons for believing that this holds good at Chysauster, where the

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present farm has moved a quarter of a mile southwards. If, on the other hand, the original settlement was first founded in the Dark Ages



FIG. 1. FIELDS AT ZENNOR
(from O.S. 6 in. Cornwall 161 sw, and 68 sw, by permission of H.M.S.O.)

or later, on previously uncultivated land, none of the walls will be of older date.

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The problem stated thus has, however, a misleading appearance of simplicity. We know very little about the dates when the farms and villages of Cornwall were founded. Villages compounded with Lan- are believed to represent monastic foundations. 'Mr Henderson believes that of the 254 Cornish parishes at the present day no less than 98 are the descendants of Celtic monastic foundations, and the total number of monasteries was far greater'.⁴ Some of them may have been refoundations on older sites, and the field-walls would then have merely been adapted, not razed. Moreover, some monastic sites may not have survived as inhabited places. 'Since the monks of the 6th and 7th centuries lived in groups of huts surrounded by a rampart in the prehistoric way, the rest of the population probably did so too, which means that some of the forts which have been provisionally assigned to the Iron Age may belong to this time. It is conceivable also that a few may be the outer walls of long forgotten monasteries. A possible example is an oval fortification at the entrance to the Helford River in which stands the church of Mawnan parish'.⁵

On the gorse-covered downs of Penwith the process of clearance and enclosure is still going on. There is still plenty of open unenclosed moorland, and a recent incident goes far to prove my case, if the facts are to be accepted.⁶ On the farm of Amalveor in Towednack a piece of land was being brought under cultivation and for this purpose an old decayed bank was being destroyed. This bank consisted of earth and stones and may have represented a turf wall built on stone foundations, or with layers of turf alternating with stones, as is done today. In this old bank was found a small hoard of gold ornaments of the Middle or Late Bronze Age.⁷ Now it is obvious that they cannot have been hidden there before the bank was made; therefore the bank must have been at least as old as the Bronze Age.⁸ At the time of my visit another old bank was being destroyed, and it seems likely that these represent prehistoric field-boundaries. Since the area enclosed within them is very small the farmer is getting rid of them—he is in fact making just such a minor alteration as I predicted above (p. 163). It should be noted however that these banks are now of very small dimensions, and the labour of clearance therefore slight.

⁴ Hencken, 233.

⁵ Hencken, 236.

⁶ They have, however, been disputed.

⁷ Hencken, 287.

⁸ Unless, as is possible, they were found and rehidden in modern times; but personally I do not think this at all probable, nor is it supported by evidence.

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The gradual encroachment of enclosure upon the waste can be seen on the map of Amalveor nearly as well as at Embla, because there is

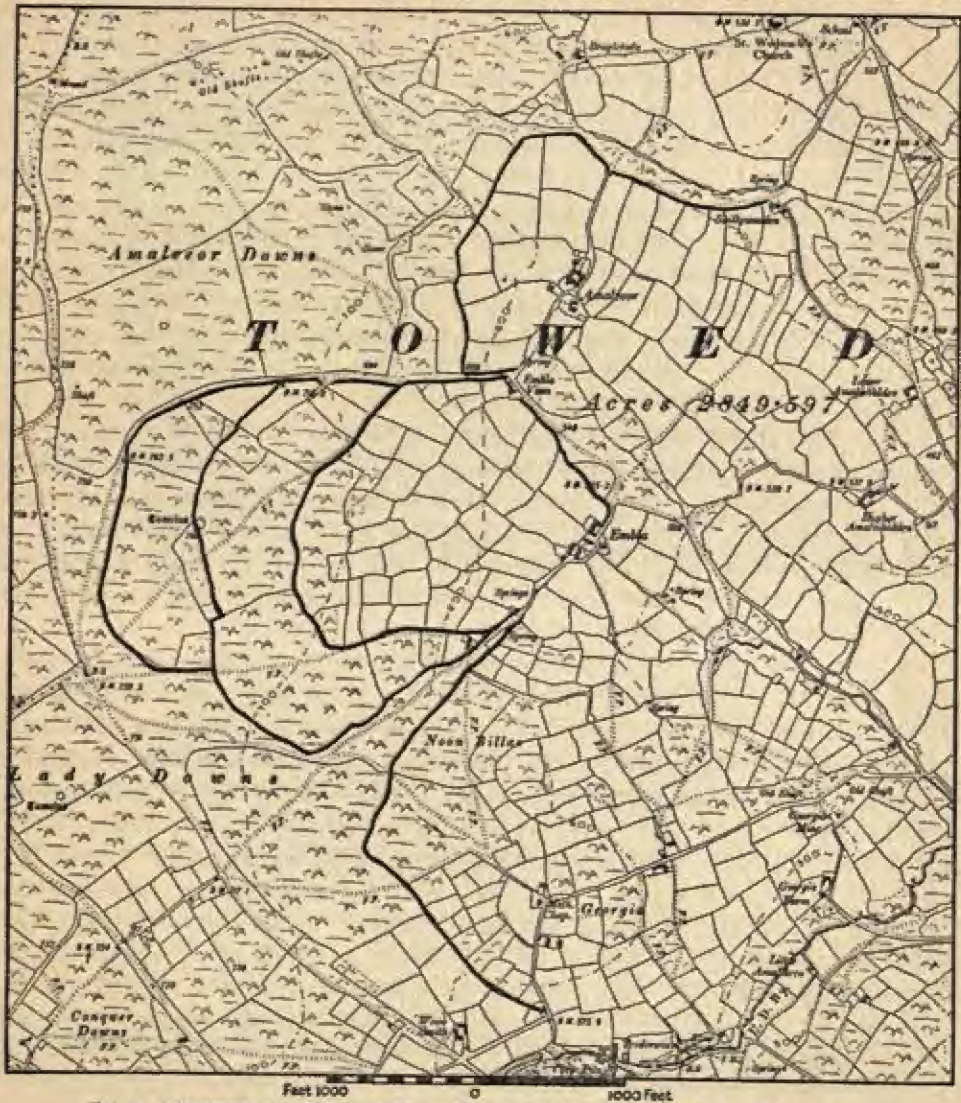


FIG. 2. INTAKES, AMALVEOR, EMBLA, GEORGIA, IN THE PARISH OF TOWEDACK
(from O.S. 6 in. Cornwall 68 sw, by permission of H.M.S.O.)

still much moorland remaining unenclosed. It can be inferred in regions where enclosure is now complete, from the existence of long,

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continuous, curved walls, enclosing a large area. Such may be seen north of Castallack in Paul, for instance (FIG. 3). When was this line of wall laid out? There is nothing remarkably ancient about it, though it is mainly megalithic and may be of any age. It seems to start from a Roundago⁹ which has every appearance of antiquity (PLATE I). The wall of the Roundago itself is of exceptional interest and beauty, and contains examples of grounders, of what may be the remains of upright gate-posts, and of flat-bedded masonry. Close by on a piece of rough ground are the remains of buildings too much overgrown to be seen properly but certainly ancient, and probably prehistoric; while across the road, near a quarry, are several small lynched enclosures and rows of grounders, the remains of ancient dividing-walls. It looks as if the long enclosing wall belonged to the Roundago; but close by is a farm with the ancient name of Castallack, and we must beware of rash conclusions.

If, however, the field-systems adjacent to other Rounds are examined, there will be found similar long lines of continuous walling, centring apparently on the Round itself. In every case another explanation is possible, but I am inclined to think that the number of coincidences is at any rate enough to justify the working hypothesis I have put forward—that these large intakes were perhaps the sheep and cattle ranches of the Round-builders.

We are not without precise knowledge of prehistoric field-walls. The grounders of some still survive in various parts of Cornwall and in the Scilly Isles (as on Bryher). On the southern slopes of Mulfra Hill are many rows of stones (PLATE VI), including one whose grounders are set in a low bank which runs right up to Mulfra Quoit, a megalithic burial-chamber on the top of the hill. These, I think, undoubtedly mark the boundaries of the fields belonging to the villagers whose huts are still to be seen lower down the hill. The bank may represent the decayed remnants of the turves and smaller stones forming the wall.¹⁰ What is required, here and elsewhere, is a series of air-photographs showing the plan of this ancient field-system and its relation to the

⁹ This term, and that of 'Round', is commonly used in Cornwall to describe the small circular enclosures that are so common everywhere. They are believed to be of prehistoric date, but have not been proved so by excavation. Some of them, however, differ only from such structures as Chun in respect of state of preservation.

¹⁰ If so the almost complete disappearance of the covering mound or cairn of Mulfra Quoit would be explained; it was used as a quarry for wall-stones by the prehistoric (Iron Age?) villagers.

PLATE II



FIELD-WALL, AT TRENDRINE, NEAR ZENNOR
PH. O. G. S. Crawford

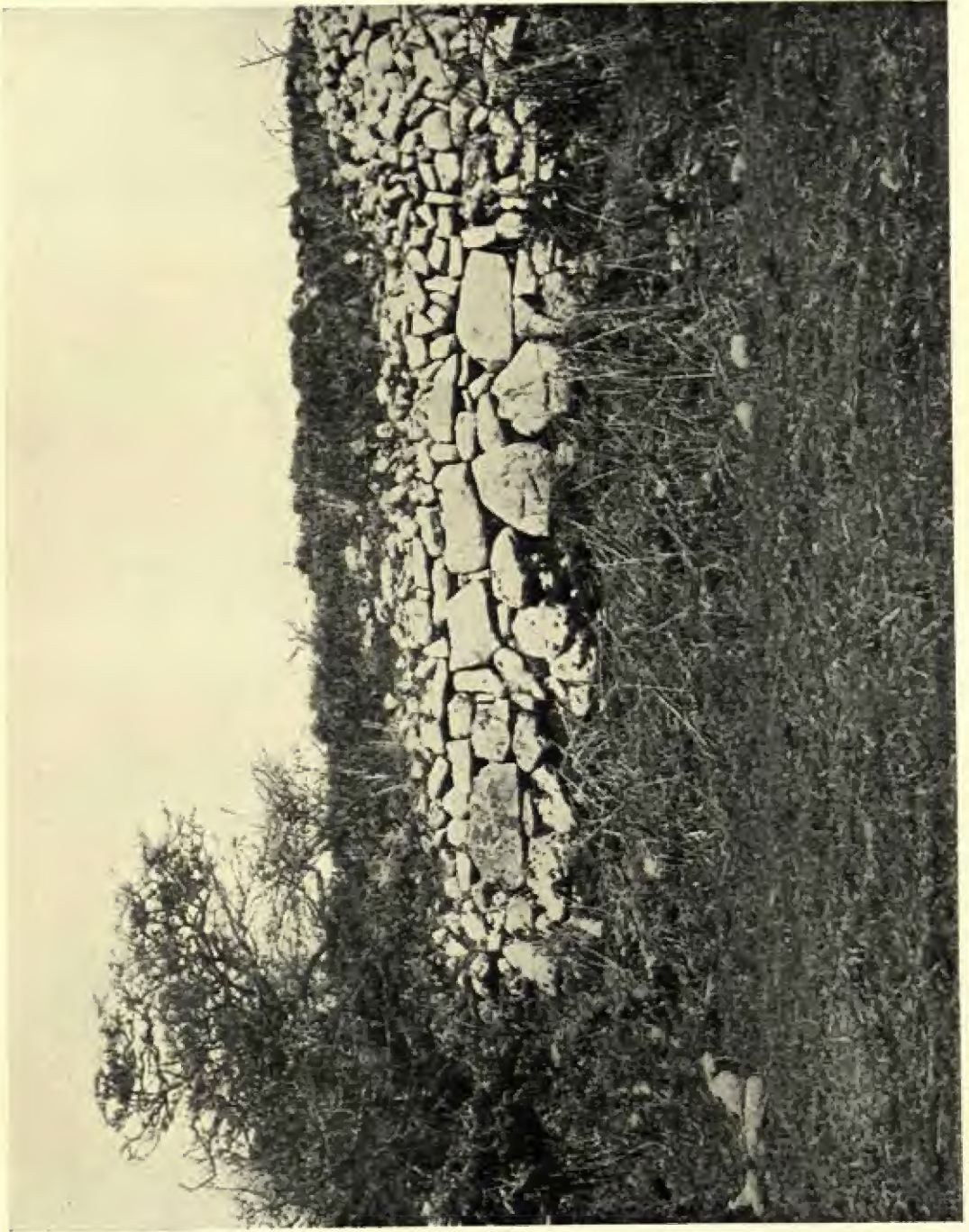


PLATE III

FIELD-WALL AT BOSWEDNACK, ZENNOR

Ph. O. G. S. Crawford

PLATE IV



LYNCHEWALL BETWEEN CHYSAUSTER AND CARNAQUIDDEN
PH. O. G. S. Crowford

PLATE V



OLD MASSIVE WALLING IN LYNCHET BETWEEN CHYSAUSTER AND CARNAQUIDDEN
Pk. O. G. S. Crawford

PLATE VI



ROW OF GROUNDERS OF ANCIENT-FIELD WALL, MULFRA HILL, MADRON
Ph. O. G. S. Crawford



PLATE VII

MODERN FIELD-WALL OF STONE ALTERNATING WITH TURF, ROSEWORTHY FARM, GWINEAR
Pl. O. G. S. Crawford

PLATE VIII



RUINS OF BUILDING OF STONE AND EARTH ON ROAD BETWEEN TOWNSHEAD AND PEAZE, PARISH OF ST. ERTH
Ph. O. G. S. Crawford

PLATE IX



OLD WALL ON THE OUTSKIRTS OF ST. IVES, SHOWING METHOD OF CONSTRUCTION
Ph. O. G. S. Crawford

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modern one where the two impinge. But the conditions governing successful air-photography here are exceptionally exacting, and there is unfortunately no immediate prospect of satisfying them.

There is a continuity in the peasant culture of the West Country that is lacking in the east, where the footprints of the invader have left a more lasting impression. No invader seems to have troubled much about Cornwall since prehistoric times ; at any rate neither Roman, Saxon, Dane or Norman did much to alter the fundamental facts of



FIG. 3. ANCIENT REMAINS AT CASTALLACK, PARISH OF PAUL
(from O.S. 6 in. Cornwall 74 SW, and 79 SW, by permission of H.M.S.O.)

its life.¹¹ The modern hill-top villages of Madron, Ludgvan, and some ports such as Hayle and Marazion, may well have had an unbroken

¹¹ This raises an interesting problem. Which, in the long run, produces the greater effect, alters the mode of life more fundamentally—an invasion or an economic factor, such as an effective demand for a commodity? Much of the modern life of the Cornish countryside is determined by the demand for tin, flowers and cabbages. The demand for early spring flowers is revolutionizing the field-system of the Scilly Isles, as it has already revolutionized the life of the cultivators. The price of tin affects the life of every miner and of those who supply him with goods. In the past the commercial prosperity of Cornwall must have been dependent upon the demand for tin. It must also have been influenced by the activity of intercourse along the western sea-ways. Here invasions of the east of England would have an indirect and stimulating effect. But such matters lie outside the scope of the present article.

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existence of more than two millennia. Who is to say how many prehistoric villages have been gradually obliterated by the continuous occupation of a site? How many Rounds are hidden in the walls of modern fields? Continuity of settlement implies some continuity of the accompanying agricultural system. As long as the conditions of country life remain constant, so long will the field-system remain constant also; the need for expansion, when it arises, has been met by enclosure of the waste.

Whatever may be the real truth about continuity of settlement—and the ideas here set down are admittedly speculative—there can be no doubt about the continuity of the craft of wall-making. It is still very much alive and practised in accordance with traditional methods. (A good example of recent work is to be seen on PLATE VII). These methods vary in every district in conformity with the materials employed, and we may well presume that the more perishable components, turf, earth and mud-mortar, were used also in prehistoric times. Indeed remains of such mortar still survive in the (Bronze Age) chambered barrows of the Scilly Isles,¹² and the ancient walls of Amalveor and Mulfra may have been partly made of turf.¹³ With the aid of constructive imagination (if a mere 'professional archaeologist' may be allowed its possession!) it is not difficult to visualize the appearance of the countryside in 'megalithic' times and later. Has full scope been given, for instance, to the prehistoric use of 'clob'¹⁴ walls? It was quite common, until recently, for the walls of houses to be made of clob upon a basis of a few courses of stone-work. Perfect examples are not easy to find nowadays, or to photograph when found (because the stone-work is generally hidden under whitewash and plaster). I have therefore chosen a ruined building as an illustration (PLATE VIII). When in complete ruin, such a building would become an almost formless mass of earth and stone rubble, for then the mud-mortar would not hold the stones in position for long. The excavator might hardly suspect that he was excavating a house! Some acquaintance with the modern usage is thus both instructive and helpful, when projected into the past.

¹² Hencken, 24.

¹³ Turf walls were once common in the almost stoneless South of England where they were erected round intakes from the waste, the turf being pared off the surface as a necessary prelude to cultivation; this is exactly paralleled in the west by the use of grounders dragged from the field and used in the walls.

¹⁴ 'Clob' consists of the local earthy clay with a liberal admixture of the local stone broken into small angular fragments. It is the Cornish equivalent of the familiar mud walls of the Wessex cottages.

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The craft of 'hedging' has lasted unbroken and without essential modifications since the Bronze Age at least; the craft of the builder of what are called 'primitive' structures¹⁵ is only recently extinct. It is therefore not surprising that this continuity should also be evident in folk-lore and legend. Some fragments were collected more than a century ago by Dr Robert Hunt, from whose book the following remarks are all taken.

Giants have left their mark on almost every rock and cairn of the extreme west. Their 'places' were the prehistoric hill-forts of Carn Brea, Treryn, Trencrom, and Pencair, and there were giants at St. Ives and St. Michael's Mount. They were particularly active, it seems, in the region between St. Ives and Marazion. (Is this an echo of traffic along an isthmus road?) The giant of St. Michael's Mount was called Cormelian or Cormoran. (Is this a corruption of Cunomoron?) The giant of Treryn 'was chief of a numerous band, and by his daring he held possession, against the giants of the Mount, of all the lands west of Penzance'.¹⁶ But perhaps the most interesting giant in the present connexion is Tom, the giant-killer, who lived 'somewhere westward of Hayle, probably in Lelant'.¹⁷ He was a great eater and worker, but lazy; 'occasionally Tom would have an industrious fit; then, if he found any of his neighbours hedging, he would turn to and roll in all the largest rocks from over the fields, for "grounders"'. Tom eventually got a job as the driver of a brewer's wain, and went to live at Marazion, where the brewery was. One day, as he was going to deliver beer at St. Ives he helped some men by lifting a tree single-handed on to a 'draw'. 'The feat was performed in Ludgvan Lees, and a little farther on was a giant's place diverting the road, which should have gone straight to St. Ives but for it. This place was hedged in with great rocks, which no ten men of these times could move. They call them Giant's Hedges to the present day. There was a gate on that side of the giant's farm which was nearest Market-Jew (Marazion), and another on that side which joined the highway leading on to St. Ives. Tom looked at the gate for some time, half disposed to drive through, but eventually he decided on proceeding by the ordinary road. When, however, Tom was coming back from St. Ives with his empty wain, his courage screwed up by the influence of some three or

¹⁵ Another article, or a note, may deal with survivals of such primitive structures today in Cornwall; they consist for the most part of pig-styes, goose-houses, cow-sheds and derelict buildings, out in the fields, whose purpose has been forgotten.

¹⁶ Hunt, 48.

¹⁷ Hunt, 55 ff.

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four gallons of strong beer which he had drunk', he decided that 'the king's highway ought not to be twisting and turning like an angle-twitch' (worm) and went boldly on. He opened the gate and drove his oxen through. 'On went Tom, without seeing anything of the giant or of anybody else, except the fat cattle of all sorts in the fields. After driving about a mile, Tom came to a pair of gates in a high wall, which was close to and surrounding the giant's castle. There was no passing round those, as deep ditches, full of water, were on either side of these gates. So at them went Tom. The huge gates creaked on their hangings, and the wheels of Tom's wain rattled over the causey. A little ugly midgan of a cur began to bark, and out tore the giant, a great ugly unshapely fellow, all head and stomach'. With Tom's further adventures, diverting though they are, we are not now concerned. Suffice that, after an exchange of courtesies, they had a fight and Tom killed the Giant, who, liking his bold enemy, bequeathed him all his possessions with his last dying breath (rather an unnecessary formality, it seems, on such an occasion!). Amongst them were 'heaps of gold, silver, copper and tin down in the vaults of the castle, guarded by two dogs [called Catchem and Tearem. 'There is more head of oxen, cows, sheep, goats and deer, than thee canst count'; and his final injunction was one characteristic of a megalith-builder—'take them all, only bury me decent'.

It would be most improper to treat this delightful romance as if it were authentic history. It is not coherent or even consistent with other tales of the same kind, and all we can expect of it is an occasional glimpse of a vanished past. Moreover we must remember that the peasant sees the whole of the past in a single plane, as it were, without perspective; it is just the time before his own; 'Them ere rocks were put there afore you nor me was boern or thoft ov; but who don it es a puzler to everybody in Zennor. I de bleve theze put up theer wen thes ere wurld was maade; but wether they was or no don't very much mattur by hal akounts'.¹⁸ Tom may have been a composite character, blended from class-conscious rebels of feudal times and prehistoric merchants on the trans-peninsular route. The giant Blunderbuss, his victim, may have been a cross between a feudal lord and some earlier brigand who robbed those merchants. The account of the giant's castle, however, has a prehistoric ring. Note for example that it was

¹⁸ Hunt, 176 (Zennor Quoit).

THE WORK OF GIANTS

a mile from the first gate to the second, which was double and had a wet ditch¹⁹ on either side and led straight to the castle. Between the two there was no sign of the giant but only 'the fat cattle of all sorts in the fields'. This is strongly suggestive of that great outer enclosure

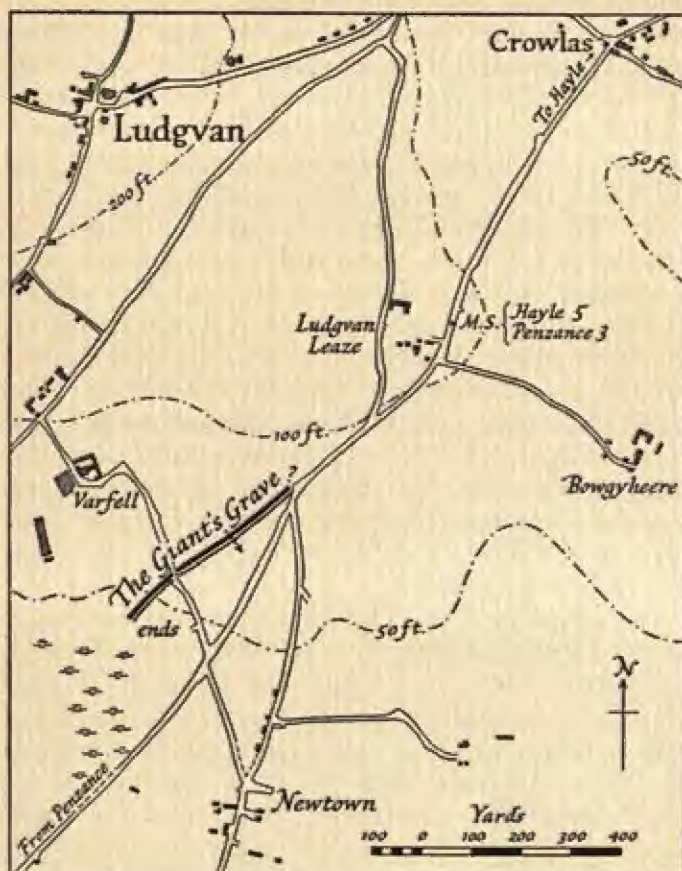


FIG. 4. LINEAR EARTHWORK CALLED 'THE GIANT'S GRAVE'
(Based on O.S. 6 in. Cornwall 68 sq. by permission of H.M.S.O.)

of the waste that we suspected was attached to the 'rounds', such as Castallack (see above, p. 168-9). The existence of cattle-enclosures attached to prehistoric settlements has long been recognized, but they

¹⁹ It is possible that the ditches of Chun Castle contained water. See R. A. Smith in *Archaeologia*, LXXVI, 240.

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have usually been much smaller affairs, cattle-folds rather than, as here, ranches.²⁰ But there must have been ranches, and I have always believed the linear earthworks of Salisbury Plain to have served the purpose of delimiting them.²¹ There too we have, on a larger scale, the succession of village, arable and pasture.

It seems that it was the hedge of the giant's cattle-ranch that blocked the St. Ives road. It lay beyond Ludgvan Lees, that is to say, on the north or St. Ives side of it. The name Ludgvan Lees still survives, applied to an old farm half a mile southeast of the village of Ludgvan. Now it is remarkable that on the *other* side of Ludgvan Lees there is a hitherto unrecognized linear earthwork called the Giant's Grave (FIG. 4). It consists of a huge earthen bank, still some five feet high in places, with a ditch on the south-eastern side. The surviving portion is a quarter of a mile long. The south-western end rests on unreclaimed boggy ground with a stream running through it, just south of the farm called Varfell. It runs into the main Penzance-St. Ives road and is lost where the road from Newtown comes in from the south. (At the time of my visit last March the main road here had recently been widened, and the old surface-line under the bank was plainly visible). Was this the earthwork that Tom encountered? If it was, the theory of a cattle-ranch here becomes untenable, for the Giant's Grave is obviously a defensive affair like the Grim's ditches of central and eastern England.

So far as names go the evidence is equally inconclusive. The name of Giant's *Grave* indicates that the same sort of tale was told of it as of Bolster Bank in St. Agnes, and the Hack and Cast in Goran.²² On the other hand, the Giant's Hedge, between the creeks of Looe and Lerryn (Fowey) is an earthwork of exactly the same kind as Bolster Bank and the Giant's Grave, and the name connects it with the tale of Tom and Blunderbuss. There we must leave the matter, content at least to have added a third to the two known defensive linear earthworks of Cornwall.

The work of giants in the west is done for ever, but the hedges remain, more beautiful than their makers were, 'by hal akounts'!

²⁰ See the instance at Köln-Lindenthal, *ANTIQUITY*, 1936, x, 89-93.

²¹ See the Ordnance Survey Map of Celtic Fields of Salisbury Plain, 1 : 25,000. Old Sarum Sheet, 1934.

²² Hunt, 75-6. The Hack and Cast is rather a promontory fort than an earthwork of the longer kind.

Rock Paintings in the Libyan Desert

by W. B. KENNEDY SHAW

'TIME', wrote Sir Thomas Browne, 'which antiquates antiquities, and hath an art to make dust of all things, hath yet spared these minor monuments'. The Nile Valley is full of major monuments—pyramids, tombs and temples; each expedition which goes into the Libyan Desert learns that it is well-filled with minor ones and remarkable among these are paintings and gravings on rocks.

Broadly speaking, most of the paintings have been found in or near the mountain mass of Gebel 'Uweinât,¹ and the incised pictures further south in the region of the Wadi Hawa, south of Bir Natrun.² One group of paintings had been found on the west side of the Gilf Kebir, a high sandstone plateau lying to the north of 'Uweinât, which stretches northwards from lat. 22° 30' for 150 miles. In January 1935 a party of six (the late Colonel G. A. Strutt and Mrs Strutt, M. H. Mason, R. E. McEuen, R. N. Harding Newman and myself), using three Ford cars for their transport, was exploring the southeast part of this plateau and hoping to find, among other things, new rock-drawings. This part of the Gilf Kebir is cut up by wide, sandy valleys divided by still uneroded portions of the original table-land. At the head of one of these valleys and nearly on a level with the plateau top McEuen noticed a number of rock-shelters, in one of which Harding Newman found the paintings which are the subject of this paper (PLATE I). The site is in lat. 22° 58', long. 25° 09', 400 miles west of the Nile and 200 miles southeast of Kufara Oasis. The rock-shelter, 4-5 ft. high, and 15 yards across the mouth, runs back for about 6 yards into the hill and faces southeast. It is thus fairly well

¹ Those found by Hassanein and Kemal el Din are described by Breuil in *Revue Scientifique*, February 1928. Others at 'Ein Dua found by Almasy are admirably published by Caporiacco and Graziosi, *Le Pitture Rupestri di Ain Doua* (Florence, 1934). See also an article by the writer in *ANTIQUITY*, March 1934, pp. 63-72.

² Some are recorded by Newbold in *ANTIQUITY*, September 1928, 261-91.

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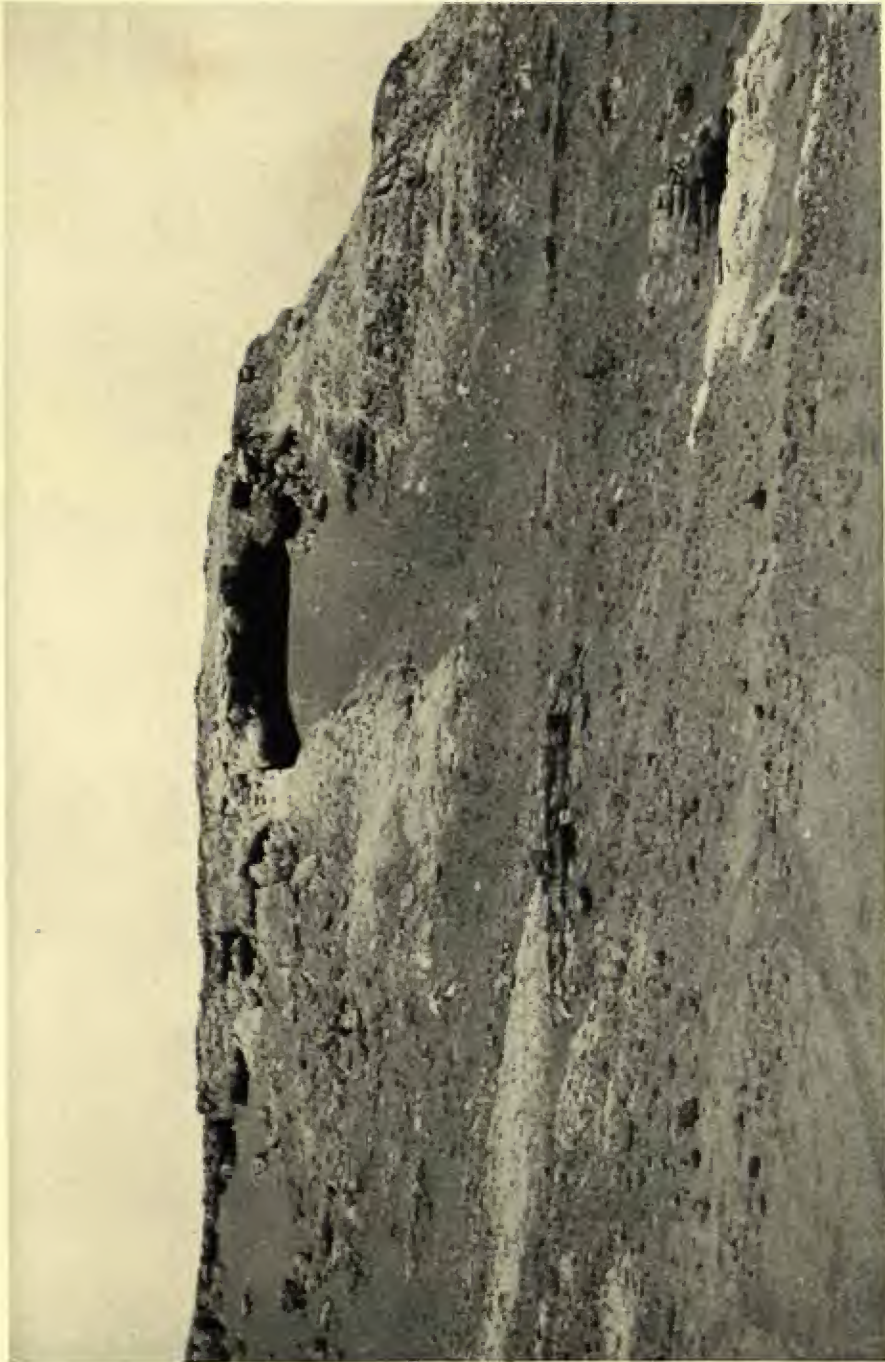
sheltered from the prevailing northerly winds. Most groups of rock-paintings in the Libyan Desert, as Frobenius points out, have been found at existing water points, such as 'Ein Dua, or where there is a strong probability of there having been water in the past, but these are high up near the summit of the plateau. The mouth of the cave was partly blocked with drift sand but at the back, below the paintings, this was scoured down to the rock floor. We were unable to move all the sand but found nothing in it. In front there is a fall of 30-40 ft. and on this slope were a few fragments of hard, buff or red-brown pottery, some nondescript quartzite flakes and pieces of ostrich shell.

The paintings are on the sloping back wall of the cave and are in white and two shades of red. We copied them by tracing on transparent paper, by photographing, and used a colour tint card to determine the exact shade for reproduction later. Most of the figures illustrated here are photographs of pastel copies.

These paintings are closely paralleled by those at 'Ein Dua mentioned above. I have been fortunate in being able to show them to the Abbé Breuil and he assures me that they are the work of the same people. The pictures certainly represent domesticated animals; this is clear from the collars or halters shown on some (nos. 8, 9, and 14) and from their spotted coats. The cattle are probably *Bos africanus*, of Predynastic and Old Kingdom times in Egypt, and later replaced by *Bos brachyceros*. The prominence given to the udders is noticeable and suggests that the production of milk was an important feature. The scene in no. 22 is found three or four times at 'Ein Dua though here we have a more complete picture. It seems to represent a cave or hut, from the roof of which hang various objects, with a woman seated within and a man standing outside. Since the paintings themselves are in a cave, one might expect the artists to have lived in and painted a cave also; on the other hand objects would hang more easily from the roof of a hut. The two human figures resemble those at 'Ein Dua, where we find the same broad shoulders, slender waist and wide hips. The white garment falling from the waist is found there also, and again among the paintings from Karkur Talh at the east end of 'Uweinat which have been published by Frobenius.³ The filiform figures of 20 and 21, however, find only one parallel at 'Ein Dua, and this, as Graziosi points out, is in turn similar to the eastern Spanish paintings. The latter, however, include no domesticated animals;

³ *Berliner Illustrierte Zeitung*, 18 February 1934.

PLATE I



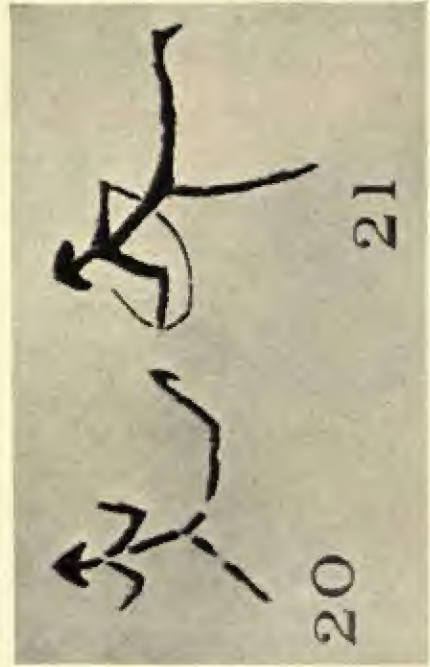
ROCK SHELTER, LIBYAN DESERT

PLATE II



ROCK-PAINTING, LIBYAN DESERT

PLATE III





ROCK PAINTINGS IN THE LIBYAN DESERT

human figures and hunting scenes predominate. The mushroom-shaped heads seen here (20, 21) are found at Cogul in Spain and also at In Ezzan in the Algerian Sahara.⁴

Breuil finds a close resemblance between the 'Ein Dua paintings and others lately discovered near Harrar in Abyssinia.⁵ He supposes that domestication of the animals represented there may first have taken place on the Abyssinian plateau, whence it spread westwards to the Nile Valley and beyond. One man at Harrar wields a bow exactly similar to those seen on the lion-hunt slate palette of Egyptian predynastic age.

To sum up, these Gilf Kebir paintings are probably the work of a pastoral people living about the date of the Egyptian predynastic period. They resemble closely the pictures at 'Ein Dua, which in turn have affinities with those at Harrar, and, through In Ezzan, with eastern Spain (Cogul, Alpera, Minateda) and with South Africa.

As it would obviously be of interest to learn something about the pigments used by these early artists we collected from a few of the more obscure pictures some specimens of the paint. Dr L. A. Jordan, of the Paint Research Station at Teddington, has kindly examined these for me, and reports as follows:—

The results of the general analysis of the specimens of pigment are as follows:

RED. Iron, aluminium and silica are present. It is easy to show that silica is present in two forms—one a crystalline variety derived from the sandstone backing and the other forming part of the coloured earthy material.

WHITE. Magnesium, a small amount of aluminium and silica are present. Again the silica is derived partly from the sandstone direct and partly from the earthy material.

The composition of the red pigment is more or less what might be expected, corresponding to that of a burnt earth of which supplies were probably available locally. The composition of the white pigment, however, is a little more difficult to understand as it apparently contains no lime or gypsum type of material. Working with such small quantities, it is a little difficult to estimate the amount of each component but it would seem that the white pigment was a white clay.

⁴ *L'Anthropologie*, 1926, XXXVI, nos. 5-6.

⁵ *L'Anthropologie*, 1934, XLIV, nos. 5-6.

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I can find no trace of any medium such as might have been used as the cementing agent, and, indeed, I have been forced to the conclusion that the specimens contain no organic material whatever. The medium might have been some kind of fat or even wax imported into the region, and as you have yourself pointed out the Sudan is an area rich in products of the gum arabic type, though whether that was the case 6000 years ago is not for me to say. You will remember that I mentioned the name of Mr Noel Heaton who made some investigations on the Minoan paintings where an egg medium was used. I discussed the question of the egg medium with him and he expressed the view that the use of egg material here was unlikely but could not be ruled out entirely.

Graziosi⁶ suggests, though not apparently as the result of an analysis, that some kind of fat was used as a vehicle for the pigment at 'Ein Dua. In the Egyptian tomb-paintings⁷ the white pigment was generally whiting (carbonate of lime), but sometimes gypsum (sulphate of lime). For red a natural red ochre was the most common, a soft form of haematite containing a little clayey matter. Gum has been identified in use as a vehicle, and glue or gelatine may have been used. Lucas doubts the identification of white of egg as a medium and remarks that hens were not introduced into Egypt until a very late period. But it seems probable that the painters of the Gilf Kebir pictures could have used ostrich eggs. He quotes Russell that a red pigment of oxide of iron found at Medum could be applied mixed with water alone.

Burkitt⁸, writing of South African paintings, suggests that gum, fat or the latex of *Euphorbia* may have been used as the vehicle.

⁶ *op. cit.*, p. 16.

⁷ A Lucas, *Ancient Egyptian Materials*, ch. vi.

⁸ M. C. Burkitt, *South Africa's Past in Stone and Paint*, p. 114.

Reculver*

by R. F. JESSUP

THE twin towers of Reculver, a far-seen monument on the northeast coast of Kent $3\frac{1}{2}$ miles east of Herne Bay (PLATE 1), have long been recognized as a sea-mark of great antiquity. They were for many years maintained solely for the benefit of mariners using the shoal-beset inshore channels on the southern side of the Thames Estuary, but with the general disuse of these channels during the last decade such a guide-mark is no longer required.

The story of Reculver begins with the establishment, late in the 3rd century, of a Roman fort, which was a unit in the scheme designed for the defence of the Saxon Shore: there had, however, been a settlement of indeterminate nature here in the two preceding centuries. Then late in the 7th century a small Christian church was built within the ruined walls of the fort, and around it grew a monastic house which existed until the 10th century. After the Conquest, the building became the parish church of Reculver, and as the parish church it continued until the beginning of the 19th century when, as a consequence of the depleted population, it was abandoned. For many years after it remained a ruin (except for the towers), and in this condition it came into the care of the Office of Works in 1925. The purpose of this essay is chiefly to give some account of the Saxon church and the Roman fort, but it will be instructive to consider at the same time the changes which have taken place in the topography of the coast since Roman days.

By the terms of a widely accepted legend the towers, which are popularly known as 'The Sisters' or 'The Reculvers', were built or put into repair by one Frances, Abbess of Davington Priory, as a memorial to her twin sister Isabel who perished in a shipwreck on the Horse Sand off Reculver in the early years of the 16th century. A version of the story was indeed current about a hundred years after its supposed happening, and there may be a grain of truth in it, but in its usual form it is very largely the creation of William Henry Ireland,

* The Roman name was Regulbium (*Not. Dig. circa 425*) 'derived from an old British word for "beak, bill" . . . with a prefix corresponding to Latin *prae* or *pro*, the name meaning "promontory"'. Ekwall, *Oxford Dictionary of English Place-names*, 1936, p.365. The projecting character of the land on which Reculver stands is now masked by the green meadows which on the south and east have replaced the tidal marsh and mud flats of earlier times.

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who has better claim to be known as a notorious forger of Shakespearian manuscripts than as the author of the history of Kent in which the story with all its pseudo-historical detail first appears.¹ Subsequent topographers have not hesitated to make good use of the story for their own purpose, but it has not lost any of its popular appeal, even in face of the very pleasant alternative which Richard Barham sets before his readers in the *Ingoldsby Legends*.

The Reculver towers were actually built late in the 12th century, as their architecture clearly demonstrates. When Camden wrote his *Britannia* they were already regarded as a sea-mark, at any rate by the local people. That they were well-established and officially accepted as such by the middle of the 17th century is evident from a Minute dated 28 January 1662 in the records of the Corporation of Trinity House.² Here, the parishioners of Reculver petitioned the Corporation 'they would by Cirtifycate informe the Lord Bishopp of Canterbury the necessity that the steeple of Reculver were repaired in regard it is a very eminent seamarke'. The Corporation duly provided a certificate to this end, wherein it was stated that 'wch said steeples are very well knowne unto us to be soo eminent a sea-marke that the shipping to and from London cannot conveniently pass but with much detriment and hazzard'. The towers had evidently been in need of attention for some years previously, for in 1637 Archbishop Laud was enjoined to expedite the hearing of a cause then before him between the parishioners of Herne and those of Reculver, 'touching the repairs of the church and steeple of the church at Reculver'.

Lambarde, in his *Carde of the Beacons in Kent*, published in 1570, shows the towers of Reculver together with those of several other churches, but they are clearly not included as part of the beacon system, the inference being that they were used solely for a navigation light. This light could only have been a modest structure, a tar-bucket probably, which was placed in the towers at nightfall.

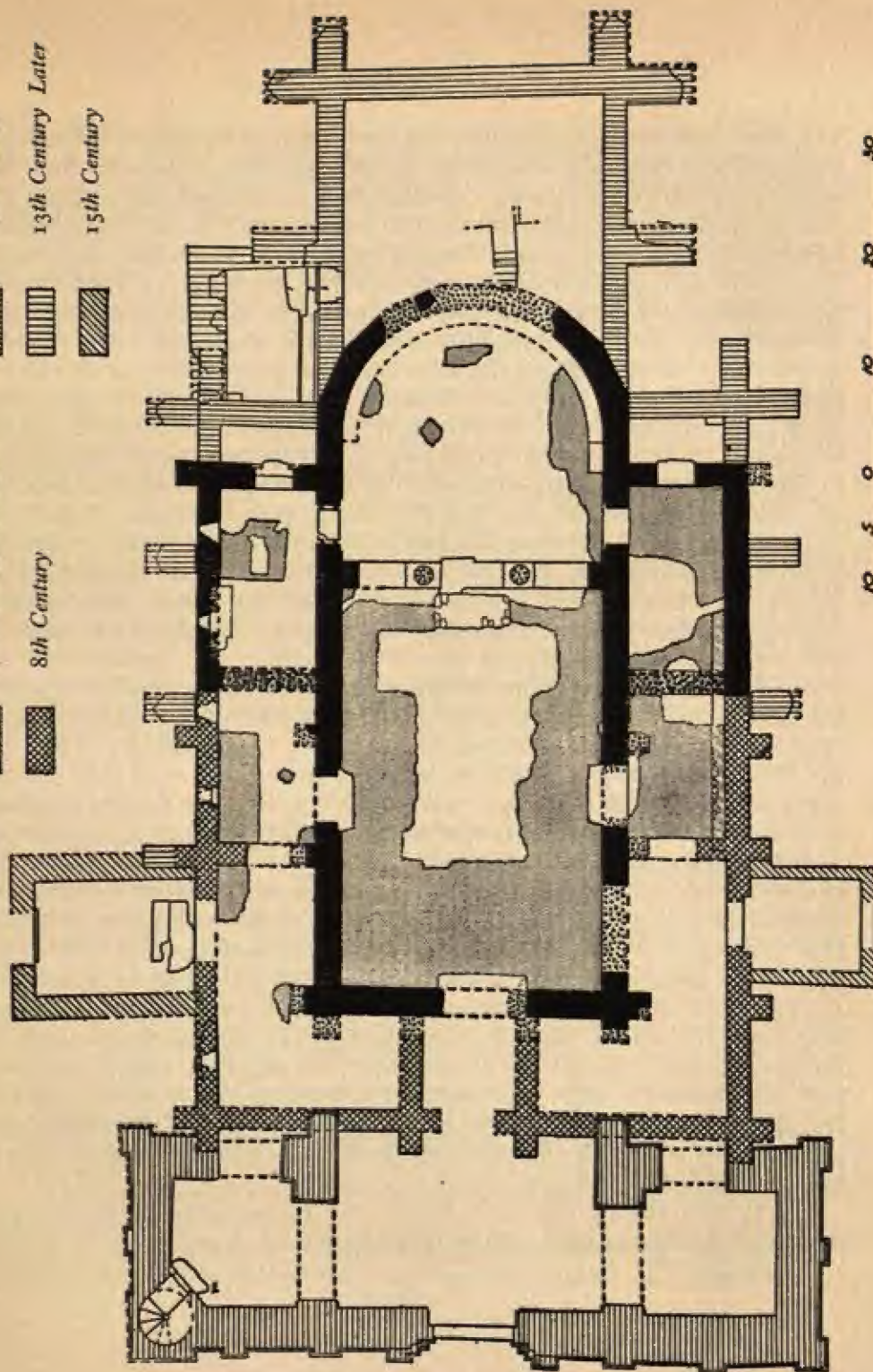
THE EARLY CHURCH

The first church at Reculver,³ according to the Anglo-Saxon Chronicle, was founded in 669 by Egberht, King of Kent, who 'gave

¹ W. H. Ireland, *History of the County of Kent*, vol. 1 (1828), 427.

² The Corporation of Trinity House have been good enough to supply me with a copy of the Minute, an extract from which I reproduce with thanks for their courtesy.

³ The only pagan Saxon relics from Reculver known to me are a lobed glass beaker, and a broken Kentish brooch.



RECVLVER CHURCH : GROUND PLAN

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to Bassa, a mass-priest, Reculver to build a minster upon', and it was built (as also was the church of King Eadbald at Dover and the lonely chapel of St. Peter-on-the-Wall at Bradwell in Essex) within the ruined walls of a Roman fort. Its subsequent documentary history is not very full. The chief items of present concern in it are these. The building was completed and occupied by 679, for in that year King Lothar of Kent made a grant of land to the abbot of the monastery of Reculver. Eadberht of Kent was buried within its walls in 761, and it was for long popularly but incorrectly regarded as the burial place of Ethelbert himself. Between 817 and 825 it comes into prominence during the Mercian quarrels with Kent, when Coenwulf of Mercia, with an eye to obtaining a useful foothold in his former dependency, tried to help himself to land belonging to the monasteries of Minster and Reculver. Finally, in 949 the monastery and its possessions passed by the gift of King Eadred to the archbishopric of Canterbury and this is the last mention of the monastic house. In its later years it can scarcely have escaped the ravages of the Viking raiders who, a century before, had already wintered in the adjoining island of Thanet and overrun Sheppey.

After the Conquest the building, which no longer had a monastic character, served merely as a parish church, and in the 12th and 13th centuries considerable additions were made to the fabric. In 1805, for the reason already mentioned, it was desecrated, and sold for the stone it contained. The twin towers were allowed to remain standing in view of their importance to mariners, and subsequently they were sold to the lighthouse authorities of Trinity House. What was left of the church quickly fell into desolate ruin, from which it was rescued in 1925 when part of the site (including the Roman walls) came into the care of the Office of Works. Much of the plan and details of construction of the early church were recovered by clearing and excavation in 1927, and since that date more of the site has been gradually secured for preservation. Much careful restoration has been undertaken, and for the guidance of visitors the plan of the 7th century building (PLATE II) is now picked out on the ground in chalk, while the 8th century additions are indicated by large flint pebbles. The foundations themselves are protected by a covering of earth, and to its very great advantage the site has been laid out with turf.

Any account of the early church at Reculver must of necessity be largely indebted to a scholarly essay by Sir Charles Peers⁴ and to

⁴ 'Reculver: its Saxon Church and Cross', *Archaeologia* (1927), LXXVII, 241.

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Mr A. W. Clapham's well-known book on pre-conquest architecture,⁵ and the following summary is derived mainly from these two authorities. The original church (PLATE II and p. 181), had an aisleless nave 37 feet in length and 24 feet in width, with an apsidal chancel polygonal on the outside but semi-circular within, a triple chancel arch of Roman bricks supported on two stout columns, and a rectangular porticus or chapel on each side of the nave marching in part with the chancel. In the northern porticus, the sills of the original inward-splayed windows still remain. The flooring, which was of thick mortar, rested on a foundation of flint, and it had a thin plaster surface coloured by crushed brick. So hard was this floor that when a Fellow of the Society of Antiquaries wanted to collect a piece as a specimen in 1782, the clerk of the church had very great difficulty in breaking it, even with a pickaxe. Much of the flint and stone rubble with which the walls were built had doubtless been obtained from the Roman fort, and Roman tiles were used for bonding. It will be noticed that the Roman walls stand to a remarkably uniform height which presumably represents the old ground-level within the fort,⁶ and apparently the Saxon and medieval builders robbed the walls systematically to that level. In the 8th century the walls of the small chapels were extended westward and then returned across the west wall of the nave, so as to form a porch at the west door, together with a series of rooms surrounding the original nave. No structure occupied the usual place of the cloister on the northern side, and the little church was evidently a building apart from the remaining monastic offices, the position of which is not known.

This church at Reculver is one of a consistently planned group to be found in southeastern England, for the construction or rebuilding of which the Augustinian missionaries were responsible.* It seems likely that they reproduced in their work features of Christian churches which, built during the Roman period, had survived the pagan Saxon barbarism. The archetype of the group is the well-known apsidal building at Silchester which is said to be a Christian church of the Roman period. In design and execution Reculver has much in common with St. Andrews at Rochester, the missionary churches at Canterbury,

⁵ A. W. Clapham, *English Romanesque Architecture before the Conquest* (1930), pp. 17, 62, etc.

⁶ The present ground-level is a few feet above the walls; formerly the area within the Roman walls was a wheat field.

* See *ANTIQUITY* 1929, III, 65-74: 'The earliest Churches in England', by Sir Charles Peers.

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Ethelburga's church at Lyminge, and St. Peter's at Bradwell in Essex,⁷ and here it may be recalled that Bede mentions a traditional Roman origin for St. Martin's at Canterbury.

Apart from the building, two noteworthy relics of the Saxon church have survived. After the destruction of 1805, much of the old stonework was removed and built into the walls of a new church at Hillborough, a mile distant, but a great deal of it was sold to local buyers. Such was the fate of the two stone columns which supported the triple chancel-arch of the 7th century church. They were rediscovered years later half buried and forgotten in the grass of an orchard near Canterbury, and one of the capitals was rescued at much the same time from the stack-yard of a farm at Reculver. By the efforts of Dr Sheppard of Canterbury, the columns were reassembled and erected in the Precincts of Canterbury cathedral. They now stand within the cathedral itself, where they are well protected from the weather. As works of art, they have little to commend them. The clumsy capitals are set off only by a heavy tapering shaft 12 feet 4 inches high with cable moulding at the base, but possibly, as Sir Charles Peers has suggested, their ungainliness was relieved by paintwork, though no trace of this is now visible.⁸

The second surviving relic is a remarkable one, consisting of five pieces of a finely carved and painted cross-shaft. They are now placed on the window sills inside Hillborough church. Apparently the pieces had been built into the fabric of the old church and were found on its demolition; a fragment of a cross-head and a small piece of shaft were also found on the site in later years. There are two well-authenticated references to a cross in the church of Reculver. A decree of Archbishop Winchelsey, dated from Reculver in 1296,⁹ refers to the oblations and alms in a certain chest near the great stone cross between the 'church and the chancel at Reculver'; and John Leland on his visit about 1540 noted there 'Yn the enterying of the Quyer ys one of the fayrest, and the most auneynt Crosse that ever I saw a ix. Footes,

⁷ For details see Peers and Clapham, *Archaeologia* (1927), LXXVII, 204 ff.

⁸ They were drawn *in situ* before the demolition; see C. R. Smith, *Richborough, Reculver, and Lympne* (1850), p. 197; for the original drawings see Society of Antiquaries, *Red Portfolios*, Kent L-R, 24, 26. There is not much possibility of their having been part of the great monument at Richborough as suggested in *Arch. Cant.* (1932), XLIV, 170.

⁹ Printed at length in Nichols' *Bibliotheca Topographica Britannica* (1784), no. xviii, p. 133.

RECVLVER

as I ges, yn highte. It standeth lyke a fayr Columne'.¹⁰ It rested on a 'greate Stone' which was plain, and its sculpture depicted Christ and the Apostles, the Passion, and the Crucifixion, and 'the hiest Part of the Pyller hath the Figure of a Crosse'. It bore also inscriptions painted in Roman capitals, and there may have been additional lettering engraved on metal strips countersunk in the stone. Now Sir Charles Peers in his examination of Reculver in 1927 found exactly 'yn the enterieng of the Quyer' and immediately to the west of the chancel steps a stone foundation which he was able to show very convincingly to be contemporary with the plaster floor of the 7th century church, and it is eminently reasonable to suppose that this foundation was the one upon which Leland's cross was erected.

Four of the present pieces were part of a round shaft; no two will fit together, but on the evidence of the sculpture they are all part of the same cross, although the only block which has interlaced work is 3 inches less in diameter than the others, all of which have a diameter calculated at 18 inches. A central dowel hole in several of the stones bears out Leland's description of a cross built up of a series of superimposed blocks. A sixth fragment, now in the possession of Canon G. M. Livett, F.S.A., Canterbury, is here published for the first time, with his kind permission (PLATE III).

The sculpture is executed skilfully enough, but in a severe way which recalls the work of Classical schools. With the one exception of simple interlaced work, it consists of draped human figures empanelled, and of vine-scrolls with human heads. In addition there are considerable traces of a background of reddish-brown paint. This colouring, which is best preserved in the panel of interlaced work, appears to be contemporary with the sculpture, and it may have been intended to supply a polychrome effect in contrast with the light grey stonework. Possibly the lettering painted in Roman capitals was a part of the same scheme. It is difficult to reconcile any of the pieces with Leland's description of the figures, but the largest piece, which bears four figures, may possibly represent Christ and the Apostles.

Although the Reculver cross is perfectly familiar to students and much has been said about it,¹¹ the origin of its admittedly alien work of the late 7th century is still obscure. It bears, of course, some

¹⁰ Leland, *Itinerary* (3rd edition, 1770), VII, folio 136. Leland also saw a 'very auncient Boke of the Evangelyes' with a stone inscribed *CLAUDIA ATEPICCVS* in the binding.

¹¹ In particular Mr Clapham has made an interesting suggestion (*op. cit.* p. 62) that the cross may have been in existence before the church.

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relation to the sculpture on the famous Northumbrian cross at Ruthwell, and the Ruthwell cross, the stylistic position of which is fairly well agreed upon, has the added similarity of Roman lettering. Several pieces of the stone have been identified as of French origin,¹² and it is just possible that its sculptor was a foreigner who had been trained in a school which derived an attenuated inspiration from classical sources, and who worked in Britain under the patronage of Theodore of Tarsus, or of his colleagues Benedict Biscop and Hadrian.

Theodore ascended the episcopal throne at Canterbury in 678, a year before the church at Reculver was founded, and all three clerics brought with them to Britain much learning and love of art. Benedict, in particular, returned from his first journey to Gaul with several masons who were to build a church in the Roman style, a style which he greatly admired.¹³ It is clear then that either of them was quite capable of setting up this magnificent rood-cross at Reculver; but one would like very much to be able to point out a single monument in Gaul or anywhere else in Europe to place what can only be an attractive theory of possibility within the surer realm of probability. In the meantime, all that can safely be said is that the Reculver cross is in its technique more foreign than the Ruthwell cross, with which it is usually agreed to be contemporary.

EROSION OF THE COAST

The chief reasons advanced for the demolition of the church in 1805 were that it was in grave danger of collapse owing to the encroachment of the sea, and that the majority of the inhabitants had moved inland. The desertion of Reculver had, in fact, been in process for many years previously. In Camden's day it was 'nothing else but an uplandish country towne', noted only for its savoury oysters and for the steeples of the church which 'shooting up their lofty spires stand the mariners in good stead as markes, whereby they avoid certain sandes and shelues in the Mouthe of the Tamis'.¹⁴ William Lambarde, Kent's own topographer, wrote in 1570 that 'the present estate of

¹² The fragments at Hillborough have not been reported upon by a geologist, but I think there is no doubt that they are of the same stone as the pieces described by Sir Charles Peers.

¹³ Bede, *Lives of the Holy Abbots*, Benedict.

¹⁴ Camden, *Britannia* (1610), p. 335.

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Reculvers (as you may see) deserveth not many wordes'.¹⁵ From the earliest days, the constant and pronounced erosion of the sea coast at this spot has attracted attention and speculation. Leland (*op. cit.*) says that Reculver 'stondeth withyn a Quarter of a Myle or litle more of the Se Syde. The Towne at this tyme is but Village lyke . . . The old Building of the Chirch of the Abbay remayneth having ii goodly Spiring Steples'. His estimate of the distance between Reculver and the sea, which has often been called into question, is in point of fact not so very inaccurate: it may be confirmed from the chart of the Isle of Thanet noticed later.

By the courtesy of Mr Allington Collard of Reculver and Mr O. G. S. Crawford, I am enabled to reproduce here (page 189) imposed on a modern 6-inch map, a little-known manuscript map of three farms in the 'pareche of Reculluer', made about 1630 by James Castell.¹⁶ At that time it will be seen there was a considerable strip of land between the northern wall of the Roman fort and the sea cliff; a note on the original map reads 'The Peice to ye Sea Shore caled iii Acres'. Mr Collard also possesses another manuscript map made by Thomas Hill in 1685, which contains a note to the effect that 'The Clift was further to the seaward then [than] now is, as you may reade in the Table of the Antiquities of the said place'. By 1781, when the Kentish historian Boys made his plan of Reculver,¹⁷ only the north-eastern angle remained of the northern wall of the Roman fort, the rest having recently fallen. A drawing made in 1781 is reproduced in PLATE IV. The church originally stood approximately in the centre of the fort, and by 1810 the sea had encroached so far that the waves were almost washing over its walls; it was in that year, when more than one-third of the area had been engulfed, that the Corporation of Trinity House at last complied with the repeated request of the inhabitants and erected protective works to prevent further inroads of the sea. A few years later, the present apron of stone and the groyne system (PLATES I and VI) were completed.

Although there is this considerable amount of information

¹⁵ W. Lambarde, *A Perambulation of Kent* (1576); 1826 edition, p. 235.

¹⁶ Hill's map was reproduced in Roach Smith's *Richborough, Reculver, and Lympne* (1850). By Mr Collard's permission there are photostat reproductions of both maps in the Map Room at the British Museum (3120.2 and 3120.3); and there is a copy of Castell's map on the site for the benefit of visitors.

¹⁷ Society of Antiquaries, *Red Portfolios*, Kent L-R, 24, 25; published in Nichols' *Bibliotheca Topographica Britannica* (1784) no. XVIII, plate IV.

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regarding the wastage of land within comparatively recent years, it is difficult to estimate the seaward extent of Reculver in Roman times.¹⁸ The rate of erosion, which has been accelerated by the unresistant nature of the London Clay cliffs, is dependent upon tides and weather conditions generally, and is far from uniform. In one bad winter, that of 1808, 10 feet of land disappeared; between 1780 and 1785 no less than $7\frac{1}{2}$ feet were lost each year, and the average loss between 1630 and 1820 was approximately $2\frac{1}{2}$ feet a year. There is also to be taken into account a possible post-Roman subsidence of the land surface and, for what it is worth, the persistent legend of a drowned Roman town off the Black Rock, though the latter might quite well be accounted for by the presence of a natural gravel spit (such as The Street at Whitstable, which has often been mis-called a Roman road), and by the pottery which has been washed out of the cliff and subsequently brought up in the fishermen's nets. On the other hand, a Roman building with a hypocaust and tessellated pavement stood considerably to the northward of the fort, between it and the sea;¹⁹ and if an average wastage of 5 feet a year be assumed, the Roman coastline might well have reached beyond the Black Rock Shoal, which is now $\frac{3}{4}$ mile northwest of Reculver. A note by Thomas Hill the 'sworne surveyer' on his map of 1685, says that in Roman days, the castle was 'neer a mile distance then from the sea', a guess that may have been very near the truth.

THE ROMAN FORT

The Roman fort covers a small knoll which, rising to a maximum height of 50 feet, is the last seaward extension of the Blean Hills.²⁰ In its original condition the fort was almost square in shape, enclosing an area of some $7\frac{1}{2}$ acres, with apparently one entrance only, but it is not certain whether this entrance was in the south or west wall. A large stretch of the walls is still to be seen. On the southern and eastern sides the core is fairly well preserved, standing to about half of its former height of 20 feet from the foundations, and a piece of the western wall (which is visible in PLATE 1) is to be seen in the rear of the King Ethelbert public-house. At present the average thickness of the core is 8 feet, and the structure consists of flint and ragstone

¹⁸ Ireland's legend of nine miles is, of course, absurd. Popular opinion, dating from the 17th century, places the town of Reculver on the Black Rock Shoal.

¹⁹ J. Battely, *Antiquitates Rutupinae* (Oxford, 1711 in Latin), 1774 edition, p. 54.

²⁰ A detailed account of Roman Reculver will be found in *V.C.H. Kent*, III, 19-24.

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with occasional pieces of tufa and septaria, and it formerly had a facing of dressed ragstone (PLATE VII) the whole being raised on a slight foundation of beach pebbles sunk in the natural sand. Much the same features were to be seen in the sister fort at Richborough. By Boys' time the facing stones had been almost entirely removed by stone-robbers, and now only two imperfect courses remain about half way along the eastern wall (PLATE VII). On the outside of the southern wall, a pebble formation is well exposed (PLATE V) where the land surface has been considerably lowered by ploughing since Roman times; the wall here has been underpinned to prevent further damage by subsidence. This lowering of the land surface has effectively removed any indications of the ditch system which, according to Gough, surrounded the fort.

An unusual feature noticed in 1878 and again by Major Gordon Home in 1927 is the presence of two inner offsets to the wall, and Major Home was able to prove the existence of an inner earthen ramp. Unlike most of the forts of the Saxon Shore, but in common with Brancaster, Reculver had rounded angles and no bastions, and there is an unexpected absence of bonding-tiles in the walls. These peculiar features in its construction have been brought forward to support a claim for an early date,²¹ but until other and contrary evidence is forthcoming, we may still prefer to think that it was built at much the same time as the majority of the Saxon Shore forts which it closely resembles in general character, that is at the end of the 3rd century.

The early historians were quick to identify the pre-Conquest *Raculf* or *Raculfceastre* with the *Castellum Regulbium*, a station mentioned in the *Notitia Dignitatum*, a garrison list the British portion of which is thought to date early in the 5th century. It includes the tribune of the first cohort of Vetasians at Regulbium under the command of the Count of the Saxon Shore in Britain. The Vetasii or Betasii were a people living in that part of Gaul now called Brabant; some of them served with the auxiliaries on the northern frontier of Britain in the 2nd century, but archaeology gives no corroboration of their presence at Reculver.

That there was an occupation of the site as early as the 1st century A.D. is proved by mint coins and pottery of that period. An additional piece of plausible evidence may be adduced in the existence of a well-aligned road of great antiquity which, following parish boundaries for

²¹ As Mr R. G. Collingwood has emphasized, the probable narrow entrance and the stout walls are both against a 2nd century date. *Arch. Roman Britain* (1930), 54.

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a large part of its course, connects Reculver with Canterbury by way of Hillborough, Maystreet Cross, Ford (where there was a mid-2nd century cemetery), Maypole, Buckwell, and Sturry. From Hillborough the road continued northward to Bishopstone where it is now represented by a field-path, and then eastward directly to what seems to be an original west gate of the fort: this road, the original eastern end of which has now fallen into the sea, is known as 'The King's Highway' on Hill's map. It fits well into the general plan of the Roman road-system in East Kent which was focussed entirely upon Canterbury, and if, as there is good reason to believe, the system was already in existence in the 1st century there is here some evidence in support of a 1st century date for the early settlement at Reculver.

A hint as to the nature of this early settlement may be given by the geographical situation of the site. It occupied a commanding position on the Genlade or Wantsum, which in Roman times was a wide and navigable watercourse separating the Island of Thanet from the mainland of Kent. It is well known that all the forts of the Saxon Shore had maritime connexions, and it seems that Reculver may have been established in that tradition long before the 3rd century system of defence was instituted. From the very beginning of the Flavian period there had been in existence the *Classis Britannica*,²² a naval Channel patrol with its base at Boulogne and depots at Dover, Lympne, and probably Folkestone; and Reculver with a harbour on a tidal inlet would have made a convenient northern station for that fleet. The site was equally accessible for London shipping (already considerable in the 1st century), most of which no doubt preferred to use the sheltered Wantsum rather than to make a rough passage round the Foreland.

The main period of occupation, in spite of chance discoveries made at various times within the fort, is still obscure. Leland testifies that 'in digging abowte the Chyrch Yard they find old Bokels of Girdels and Ring Ther hath bene much Romain mony fownd abowt Reculver'. Archdeacon Battely, the tutelary genius of Reculver, who wrote in 1711, describes and illustrates coins, pottery, and trinkets in his own large collection, the greater part of which he had purchased from the villagers.²³ These objects, by the circumstances of their collection, will not admit of a critical description. In 1878 Mr George Dowker made an inconclusive examination of the inner face of the

²² An inscription of a trierarch at Boulogne dates from Nero's reign. (*Corpus Inscrip. Lat.*, XIII, 3542).

²³ John Battely, *op. cit.*

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eastern wall for the Kent Archaeological Society,²⁴ and in 1927, Major Gordon Home was able to add to the coin list, confirm Dowker's description of the lower courses of the wall, and discover the existence of an inner earthen ramp. Equally meagre is the information regarding buildings inside the fort; and an indeterminate red plastered and tiled house with a hypocaust, a bit of rough walling, and a 16-foot well, are the only structural vestiges of the interior arrangements of this, the third largest fort on the Saxon Shore.

THE WANTSUM CHANNEL

The air-photograph (PLATE I) provides an excellent picture of the silted up northern mouth of the Genlade or Wantsum, the river which separated the Island of Thanet from the mainland of Kent. Bede described it as a river about three furlongs wide and fordable in two places only 'for both ends of it run into the sea',²⁵ the other and southern mouth being near Sandwich. The monastery of Reculver, he noted, was situated near the northern mouth of the river Genlade.²⁶ At one period during its life the Northmouth itself had another branch known as New Haven, but Reculver was never an island as Battely imagined.

The site of the supposed Roman harbour falls just outside the right-hand limit of the picture. Immediately above the Towers may be seen the Northmouth Sluice, where the shrunk North Stream, the lingering descendant of Bede's Genlade, empties itself into the sea. The whole site of the Chislet Levels, which occupies the upper half of the plate, was formerly under water, forming a large shallow bay stretching as far east as Gore End, and the whole waterway between Sandwich on the south and Northmouth on the Thames coast was sufficiently deep to be used by seafarers. Two particular instances of its use during the Viking campaigns come to mind: in 876 the Danish sea army from East Anglia sailed down the Wantsum Channel on its way to take part in the invasion of Wessex; and in 1052 Godwin and his son Harold proceeded from Sandwich through the Northmouth and so to London and King Edward.²⁷

²⁴ *Arch. Cant.* (1878), XII, 1-13.

²⁵ Bede, *Ecclesiastical History*, Book I, ch. xxv.

²⁶ Bede, *op. cit.* Book v, ch. viii.

²⁷ The Wantsum channel seems therefore to have been used as a kind of maritime isthmus-route.—EDITOR.

PLATE I



RECVLVER FROM THE AIR, 1928: WEST FRONT OF THE TWIN TOWERS

(a piece of the Roman wall, supported by four modern concrete piers, is visible behind the shed in foreground).

Royal Air Force, Crown copyright reserved

PLATE II



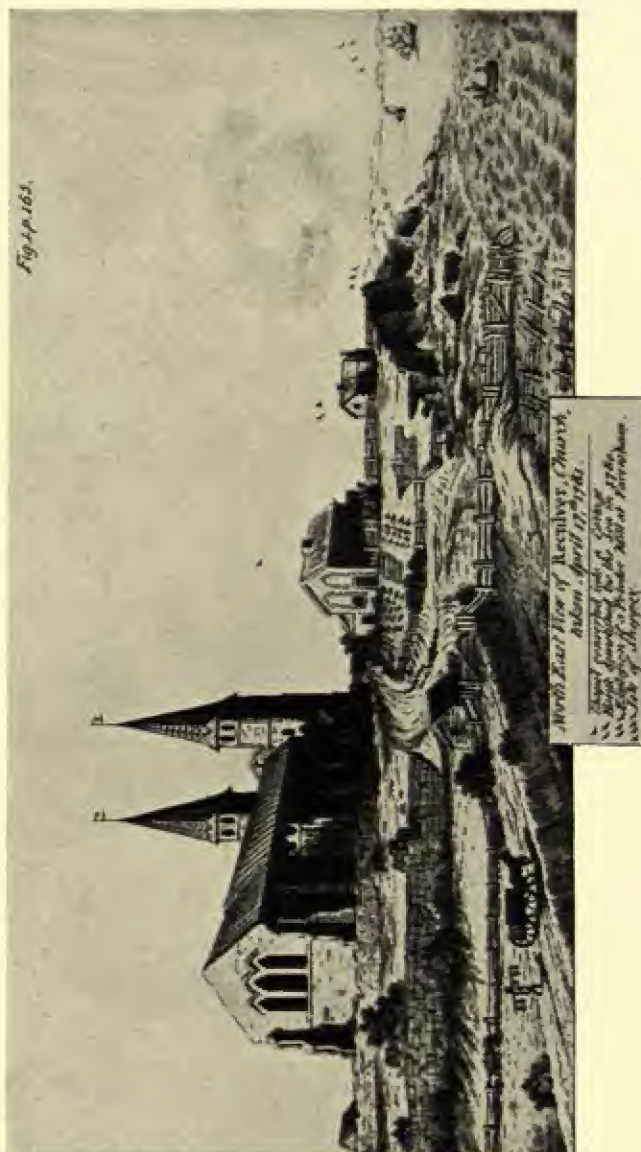
FOUNDATIONS OF THE EARLY CHURCH, RECVLVER, SEEN FROM THE WESTERN TOWERS
Pl. O. G. S. Crawford

PLATE III



FRAGMENT OF RECVLER CROSS, NOW IN POSSESSION OF CANON G. M. LIVETT, F.S.A.
Ph. O. G. S. Crawford

PLATE IV



RECVLVER FROM THE NORTHEAST IN 1781 SHOWING THE RUINED WALL OF THE ROMAN FORT

From Nichols' 'Bibliotheca Topographica Britannica'

PLATE V



SOUTHERN WALL OF ROMAN FORT, RECVLYER, SHOWING PEBBLE FOUNDATION RESTING ON NATURAL SAND
Ph. O. G. S. Crawford

PLATE VI



RECUVER FROM THE NORTHEAST IN 1896, EASTERN WALL OF THE ROMAN FORT IN THE FOREGROUND
Ph. O. G. S. Crawford

PLATE VII



EAST WALL OF ROMAN FORT, RECVLVER, SHOWING FACING OF SQUARED BLOCKS
Ph. O. G. S. Crawford

RECULVER

At what date the silting of the Northmouth began is not known. The region was particularly well suited to the growth of marshland by reason of the double tide which became slack water near Sarre, thus favouring the deposition of the loamy soils brought down in quantity by the streams on the western bank of the river. In addition, the incoming north tide brought much clay from the constantly wasting cliffs of Herne.

There is no doubt that the southern course of the river between Fordwich and Sandwich remained open to navigation for much longer than the Northmouth. The Kentish topographers²⁸ relying on hearsay evidence quoted by an obscure Elizabethan author, described the Wantsum as being navigable for great merchant ships up to the end of the 15th century, but there is in fact good documentary evidence apart from a later passage in Leland²⁹ that the Northmouth was already well silted up by that date, and the southern course only can have been navigable. There is in the British Museum a coloured map of the Isle of Thanet and the adjoining mainland³⁰ which is of interest in this connexion. A stream near Reculver is marked 'stopped', while a label on the Northmouth stream reads 'This channel ebbith and floweth hither', that is, up to a wall or dam nearly two miles inland. Other dams are indications of a considered attempt to sewer and reclaim the land, an undertaking which met with success in the district round Sarre, for the chart is here marked 'the ould chanel but now plain ground'. Eastward of the Northmouth is a series of narrow but clear-cut sewers which is labelled 'Bishop Mortons Channells'. Morton, who was made Archbishop of Canterbury in 1486 and died in 1500, was much interested in land drainage schemes: his major work was the fenland dyke between Peterborough and Wisbech which still bears the name of Morton's Leam.

It may be that Sarre Wall, the dam which was built across the narrowest part of the valley between Sarre and Upstreet and which now carries the Canterbury-Thamet main road, was due to Morton, though the inhabitants of Thanet were empowered to build a bridge at Sarre in 1485.

For the rest, the air-photo shows in the distance the line of Chambers Wall, which runs from a point west of the hamlet called Bartletts to

²⁸ e.g. Hasted, *History of Kent*, folio edition, vol. iv (1799), 289. The story of the Wantsum is in vol. i (1778), CXXXI.

²⁹ Leland, *Itinerary* (3rd edition, 1770), vii, 137.

³⁰ MS. Cott. Aug. 1, vol. 1, 54.

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Coldharbour, where the present stream of Wantsum reaches the sea. This wall was responsible for the reclamation of a large area in the eastern part of the channel. The prominent sea-walls about Reculver—that is, the Northern Wall along the coast to Coldharbour, and Rushbourne Wall which makes an inland loop between Northmouth Sluice and Knock Point,—were built late in the 18th century as the final stage in the closing of the Channel and the drainage of the Wantsum pasture-land.

In conclusion, I thank Mr O. G. S. Crawford for the great trouble he has taken in the matter of the illustrations, which were all specially taken by him for this article.

Both Editors and Author wish to thank Canon G. M. Livett, F.S.A., for permission to photograph and publish here (PLATE III) the fragment of the Reculver cross now in his possession ; and the Vicar of Reculver for kindly allowing the fragments (see page 184) at Hillborough church to be photographed. May we express a hope that some day these fragments may all find a home again in the church at Reculver where the cross once stood ?

Sheep

by MAX HILZHEIMER*

RECENT research has thrown considerable light on the history of the domestic sheep; and even though much still remains obscure, we now have a good general idea of the region in which sheep were first domesticated, besides extensive knowledge of the original wild breeds.

One point is obvious. Domestication can only have occurred where the wild sheep already had its home. This at once excludes the whole of Africa, as the wild breed proper never existed there. For the maned sheep of North Africa, despite its name, is not really a sheep: to note only one or two points of difference, it lacks the sub-orbital face-gland, and its tail is flattened and bare on the underside, like that of a goat, instead of being cylindrical and completely covered with hair. The wild breed must certainly have existed in Europe, but on the mainland was already extinct before the end of the Glacial Epoch; a small remnant established itself in Corsica and Sardinia and is represented today by the Mouflon of those islands. Therefore, unless we are to make the quite improbable and unsubstantiated assumption that a cultural advance took place in those isolated spots, Europe too is eliminated. Asia only is left; and even here, as we shall see, we must limit ourselves to the countries lying between the Mediterranean and the Pamirs, at least as far as the domestic sheep of Europe and Africa are concerned, though certain Asiatic types may have originated still further east.

With the exceptions already noted, the wild breeds are confined to Asia and to part of North America. Their home is 'the Holarctic region from Cyprus and Asia Minor eastward across central and northern Asia, and in western North America from Alaska to northern Mexico'. It should be noted that they are not found exclusively in the highest mountain-regions, as is often assumed, but appear also in the low-lying plains of Central Asia and of Siberia east of the Yenisei to the Polar Sea

* Translated by Roland G. Austin.

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in the north. It is particularly significant that they descend to lower ground in this manner, in some cases to sea-level (as for example round the Caspian and Aral Seas, in Transcaspia and the Kirghiz Steppes) as well as in the south to the Salt Range of the Punjab, to Baluchistan, and to south Persia. For it must have been here, not among the mountain-summits, that the wild sheep were first domesticated.

Four distinct groups may be recognized, although there is not absolute certainty yet concerning the individual species.

(1) THE MOUFLON GROUP. This is the group that has spread furthest westward; its best known representative is the Mouflon of Corsica and Sardinia, and its home stretches from Cyprus across Asia Minor as far as Persia. These are the smallest wild sheep, standing generally less than 30 inches at the withers, but sometimes reaching to 33 inches. A distinguishing feature of the whole group is the white saddle-patch on the old rams, which in one species (*ovis laristanica*) is even doubled, being divided by a dark band across the shoulders. Except for this, their colour in the upper parts is brownish red of various shades, with a dark flank-band at the point where the belly, which is whitish, begins. In the young lambs and the ewes the face is speckled with grey; in the old rams it is often pure white, and here again, in front of each eye, is a darker band. The adult rams of all types have a mane along the lower part of the throat, although in the case of the Mouflon it is short and feebly developed; in the *ovis laristanica* this mane is like a lion's, covering the whole throat and neck. The horns vary considerably in appearance. In the rams, as in all sheep, they are triangular in cross-section; but the outer anterior angle often tends to be blunted, and in the Cypriote species this tendency is carried so far that the horn becomes two-edged, like that of a goat. This latter formation is invariably found in such of the ewes as are horned, as occasionally happens with the Mouflon, although the Asiatic types are always hornless. The ram's horn forms a single spiral only; rarely, and that chiefly in the eastern breeds, is an incipient second spiral in evidence. In the Mouflon, the points of the horns are directed forwards or outwards; some rams, however, are found with horns pointed inwards, and this is the normal formation in the Asiatic *ovis orientalis*, in which breed it is only occasionally that the horns are directed outwards.

(2) THE VIGNEI GROUP, of which *ovis vignei* is typical. Their home is eastward of and adjacent to the regions inhabited by the Mouflon. In the north and west they are represented by the Steppe-sheep (*ovis arkal*), living between the Caspian Sea, the Sea of Aral and the Amu-darya; but

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their habitat extends through Afghanistan and Baluchistan, Gilgit and the Punjab south of the Karakoram Mountains, as far as Ladak and Tibet. They are bigger than the Mouflon type, being some 36 inches in height at the shoulder, but like them in colour, although the brown tint of the upper parts is duller and with more grey; and there is no white saddle-patch. The rams show a well-developed mane; the horns have a prominent outer anterior angle, and the beginnings of a second spiral are in evidence; although the points are normally directed inwards, in some cases they turn outwards. The ewes are always horned.

(3) THE ARGALI GROUP. These are found east and north of *ovis vignei*, from the Pamirs along the mountain-chains as far as western Kamchatka, and they descend to the plains between the Thian-Shan range, the Sea of Aral, and Lake Balkash. They are the largest type of wild sheep; some reach the great height of 48 inches at the shoulder. In winter their prevalent colour is a dark, dirty grey; occasionally they have a dark band round the neck, and often too a broad stubby mane along the underside of the throat, sometimes a short erect one on the nape. Their horns are massive, and may reach a length of 75 inches along the curve, with a basal girth of as much as 17 inches, in the case of the *ovis Poli*. The points always turn distinctly outward, with strongly developed spirals, as for instance in *ovis Littledalei* or *ovis Poli*, where the beginning of a third spiral may often be seen. The ewes are always horned.

(4) THE BIGHORNS, whose home stretches north to the Arctic Ocean and east from the Yenisei across to America. They derive their name from the formation of their horns, which are peculiarly short but very massive at the base; the inner anterior angle is liable to be rounded off. Such a formation is not found in domesticated breeds, and therefore we need not consider the variety here, as for this and other reasons it may be taken to have no connexion with the ancestry of the domestic sheep.

The first three groups have probably each produced domestic descendants. They vary so much that they already present many characteristics familiar in the domestic sheep. Domestication, however, results in even greater diversity. Horns may be lacking in both rams and ewes, they may vary greatly in length, they may form either a narrow or a wide spiral, and to take an extreme instance, in the Wallachian sheep (*Zackelschaf*) they are exactly like a screw with a perpendicular axis. The ears may be very elongated and pendant, as in the Indian Dumba sheep; sometimes they are entirely lacking, as in

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certain of the Abyssinian broad-tails. Other new points resulting from domestication are as follows. The tail has become lengthened, often reaching beyond the hocks, whereas the tails of all wild breeds are short—the longest, that of the Steppe-sheep, being only four inches; a fleece has developed; there may be a deposit of fat on the hindquarters ('fat-rumped' sheep) or on the tail ('broad-tails'), or on the nape of the neck (the Zunu from Angola); other types again have wattles on the throat. Such peculiarities have greatly helped the classification of the domestic breeds, so that distinctions are made, for instance, between the hairy and the woolly species, or the short-tailed and the long-tailed, the latter again being subdivided into those with lean and those with fat tails. But such comprehensive generic terms need not necessarily imply a racial connexion. For example, the fleece or the long tail may have been evolved independently in different varieties; just as the lack of ears occurs independently in the sheep of Abyssinia, Scandinavia, and in the Shanghai breed in China. On the other hand, we are entitled to claim racial affinity where similar points are apparent in both wild and domestic breeds, although admittedly even that may be doubtful. Still, we cannot be far wrong in refusing to derive domestic sheep with unusually strong horns from wild breeds with slighter horns, since horns tend to diminish through domestication.

In this way Pallas long ago came to the conclusion that the Asiatic fat-rumped sheep derived from the Argali; I agree with his theory, especially in view of the massive nature of their horns, which are often welded together at the base. To this class belong also certain short-tailed Tibetan breeds, although they are not fat-rumped, among which the Hunia, standing 30–32 inches at the shoulder, is remarkable for its size. Many of them have more than one pair of horns. Like their close relatives, the Silinga sheep, they are used as baggage-animals for the transport of salt and borax, each beast being able to carry as much as 40 pounds weight. In the adjoining regions to the south is found the Barwal, likewise short-tailed, with remarkably strong horns fused together at the base. These horns, and their powerful build, make them admirably fitted to be fighting animals, for which purpose they are exported to the Punjab. By artificial treatment of the horns, these Barwals are turned into the so-called unicorn sheep of Tibet. Beyond this we know nothing of the history and age of the descendants of the Argali.

Let us now turn to the western breeds. Here the sheep is among the very earliest of domesticated animals. In Europe its remains are

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found in the Danish kitchen-middens and in the lake-dwellings of Switzerland, at the very outset of the Neolithic age. In Egypt they certainly go back to the second prehistoric culture, the period of the red-figured vessels, and in Mesopotamia they date from the Jemdet-Nasr culture.

We may start with Mesopotamia, as showing the near beginnings if not the actual origin of sheep-breeding. In the Jemdet-Nasr period we already find three breeds—a fleecy, a broad-tail, and a hairy sheep. The last-named is probably the most primitive, and most closely related to the wild breed: it has not developed a fleece, and still has the hairy coat of the wild animal; the rams too have a thick mane. The tail is already slightly elongated, reaching to the knee-joints. The horns have altered, forming corkscrew-shaped spirals and projecting horizontally from the head. It is only our knowledge of their present-day descendants that enables us to infer the latter point with certainty from the extant pictorial representations; only the modern breed makes it possible to interpret the animals of early Sumerian art. The faces and ears are variously depicted; either the ears are short and pricked, and the face long, showing in profile a sunken brow and convex nose (the typical formation of a wild sheep's head), or we find elongated drooping ears and a convex profile (*Ramskopf*). We have not long known that the breed still exists in Mesopotamia; so at present we have no sure knowledge whether these two types were kept racially separated, or whether both existed promiscuously, nor can we yet be certain that the second species represents the first influence of domestication. They seem to be confined here to the Jemdet-Nasr period—at any rate we have no evidence for them in later ages from Mesopotamia.

The domestic breed must have been widespread in prehistoric times. We know of it in Egypt as far back as the second prehistoric culture. Here it generally has pricked ears, but has a long tail reaching to the hocks, and the ewes are horned. Later, in the early centuries of the Old Kingdom, herds begin to appear with drooping ears, and individual ewes are hornless. But the shape of the head still remains that of the wild sheep, with the long fine face and undulating profile. This was the only breed in the Old and Middle Kingdoms, but from the beginning of the New Kingdom another breed appears, a heavy-horned fleecy species with normal horn-formation and long thin tail—the well-known Ram of Ammon (PLATE I). Under its influence the old hairy breed became extinct in Egypt about the time of the 18th dynasty. Yet even today, in other regions of middle and western North Africa, as for

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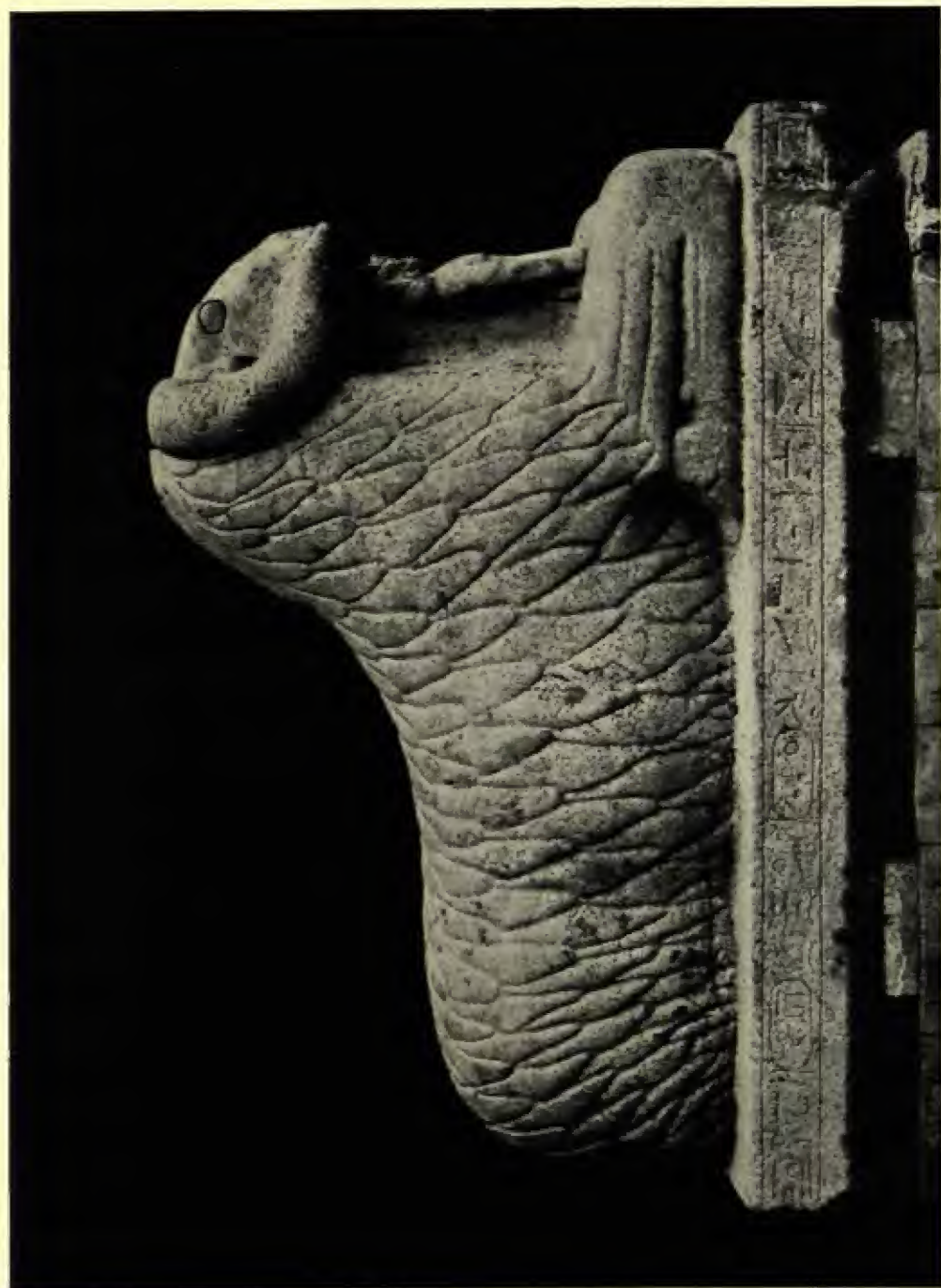
example on the upper Niger, sheep are found closely resembling it, or showing only slight differences, the rams with the typical mane and long horizontally-directed horns. Naturally, time has brought considerable modifications, so that some are hornless, others have strong horns coiled like a snail's shell (*schneckenartig*), etc.

It is interesting that the old Egyptian maned long-legged sheep was one of the sacred animals ; in Mendes it was particularly sacred to the God Khnum, in Abusir-el-Meleg to Arsaphes. When it became extinct in Egypt it was replaced for cult purposes, remarkably enough, not by the newly-imported fleecy sheep but in both places by the goat. Those peculiar representations of typical maned long-legged sheep, with the horizontal sheep's horn and coiled horn of the Egyptian goat and a goat's beard, may originate from the transition period (PLATE II).

It is not always easy to distinguish between this group and another type found in North Africa, which also belongs to the hairy breed. These are small animals, with the throat quite covered with long hair like a lion's mane ; the upper part of the body is reddish-brown in colour, and the males have a white saddle-patch on both sides ; their facial markings are black. In view of their general resemblance, I am inclined to think that they derive from *ovis laristanica*. Quite typical specimens may be found in the Cameroons, where the colourings are often reversed, the parts of the underside and the extremities which are elsewhere white now being black. They contrast with the bony angular type of the preceding group called ' long-legged ', in that they show a more normal standard of plumpness and the tail reaches at most to the knee-joints. For this reason I describe them as ' maned short-tailed sheep '. Today they are widespread over mid-northern and western Africa, where they are found with a variety of colouring and with varying strength of horn and head ; like the Cameroon species, they suggest the wild breed, but have a more or less distinctively Roman profile (*geramst sind*). We know their present breeding-places and chief centres, but nothing of their history, either when they were domesticated or when and how they reached their present homes.

We have more information about the other group of hairy breeds, the long-legged sheep. Osteological investigation shows them to be descended from the *Vignei* group. In the Steppe-sheep of that group, as we have seen, there is a breed which descends far into the plains, and even in a wild state they form largish herds. Radde and others observed herds 100-200 strong. Their instinctive gregariousness makes it naturally easy to form them into enormous herds ; today, in central Asia,

PLATE I



GRANITE RAM PROTECTING A FIGURE OF THE NUBIAN PHARAOH TAHAREA (TIRHAKAH), ABOUT 680 B.C. FROM EXCAVATIONS AT KAWA, SUDAN
Fig. 1, British Museum

PLATE II



ANCIENT EGYPTIAN REPRESENTATION OF A FOUR-HORNED RAM
17. Cairo Museum



PLATE III

BROAD-TAILED SHEEP, MOSAIC, UR (middle row, third from left)
p. 8. British Museum

PLATE IV



EUROPEAN MOUFLO, BERLIN ZOOLOGICAL GARDENS

PLATE V



CLAY MODEL OF RAM FROM JORDANSMÜHL, SILESIA
F.A. Breslau Museum

PLATE VI



ANATOLIAN SHEEP FROM A CAST OF A COIN IN THE BRITISH MUSEUM (by permission)
Pl. Max Müller

PLATE VII



ANATOLIAN SHEEP IN PANATHENAIC PROCESSION, PARTHENON FRIEZE, FROM A CAST IN THE BRITISH MUSEUM
F. 76, British Museum

PLATE VIII



BRONZE RAM FROM SYRACUSE
Ph. Palermo Museum

SHEEP

a man may own a flock of 15,000 to 20,000 head and more, and a yearling lamb was used as a unit of barter up till quite recently. If we remember that all wild sheep make annual migrations, the process of domestication becomes intelligible. As with the reindeer, so it was with the wild sheep: in their wanderings they would be expected at certain definite spots, where men could easily capture them; or, like beasts of prey, men would follow close behind the wandering herds and so keep away enemies in the animal world who competed with them for subsistence. Both partners derive advantage from this protection, and so a sort of trustful relationship quickly and instinctively arises between beast and man. The sheep gradually become tamed, not individually but as a complete herd, entirely on practical grounds. The assumption that they were first held to be sacred, or were used for sacrificial purposes, and so in this indirect manner became domesticated, seems to me untenable. For, on my supposition, the difficult question of how they were fed does not arise, as the animals roamed about as freely as when they were wild. In large tracts of Asia domestic sheep live in exactly the same way today. As in their wild state, so now they make annual migrations; the owners follow behind, and the sheep take them from summer grazing to winter pasturage and back again. They never become 'domesticated' in the proper sense of the term, for they are never housed under a roof—in fact they are exactly like the tame reindeer. Following on the protection which man afforded them against animal foes, breeds became possible which otherwise could never have been evolved, such as the fleecy sheep, the fat-rumped and broad-tailed breeds; while these characteristics were preserved by man when they once appeared, because they were of use to him.

Let us now return to the Jemdet-Nasr culture of Mesopotamia. We shall find there another breed besides the one already mentioned, a fleecy sheep with strong, coiled horns, very like the modern animal. Its drooping ears and markedly convex profile already point to considerable domestication. Soon a third breed makes its appearance, but not until the beginning of historic times; its earliest representative may be seen on the famous mosaic standard of Ur (PLATE III). Here we see, in the centre row, different sheep depicted, first the short-tailed fleecy sheep just mentioned, together with a goat, apparently being driven by a man. It has still the primitive head of the wild sheep, without a Roman profile, the ears are pricked and the horns have a snail-like spiral, making at the most a three-quarter turn. Next, looking backwards along the same row, we see a sheep led by a man, very like the previous animal in

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the shape of its horns, head and ears, as well as in size and proportion of body. But it has no fleece, and a distinctly half-length broad tail, reaching to the knee-joint. I was in doubt for some time as to whether this was really a representation of a broad tail, or whether the mark which separates it from the rest of the body was only a break in the mosaic. But that is not the case. Mr Crawford, who kindly examined the mosaic for me in London this year, writes: 'the dark mark separating the tail from the anus is a groove or scratch deliberately made by the artist for this purpose. That is quite certain'. Whether the lack of wool is to be explained by the fact that the sheep had been sheared or plucked (as was generally the practice before shearing came into use), or whether the breed had not developed a fleece at that time, cannot be decided from this picture, which is the only one extant from that period. In any case it developed wool later. At least these sheep appear with fleeces in the later Assyrian period, as for example on the relief of Tiglath-Pileser III, where the ewes are hornless. But at the same period the short-tailed breed was also still in existence; I think I can recognize it on the frieze of Sennacherib's camp.

It is not until the middle of the first millennium B.C. that we find evidence of broad-tailed sheep with long tails reaching to the ground (in the modern breed crooked outwards again at the point). Herodotus (5th cent. B.C.) writes (III, 113): 'In Arabia there are marvellous sheep. One kind has tails three ells long, so that men attach them to a little trolley, to prevent them from trailing along the ground and so contracting sores. The other sort have tails as much as an ell broad'. The second of these breeds is possibly the first historical mention of the fat-rumped sheep. And the story of Herodotus, and later of Diodorus, about the means used to protect the long tail, is not just a fable, but, as modern travellers state, the method is still employed for exactly the same purpose in parts of Asia Minor.

It seems that the hairy sheep never reached Europe, while the broad-tailed and fat-rumped varieties are but seldom found there, and only in the extreme east, where they are probably a later importation. Such are the broad-tails of the Balkans which were probably introduced by the Turks, or the fat-rumped sheep of the Volga Kalmucks, which accompanied their masters from central Asia in their migrations of the 17th century. Apart from this, the sheep of Europe have always been the fleeced variety. They are already in evidence by the beginning of the Neolithic age, that is, the period when we find the earliest traces of agriculture and cattle-breeding. They occur simultaneously in the

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two places where remains of domestic animals of that period are especially found, the Swiss lake-dwellings and the Danish kitchen-middens. In both we find a small sheep with erect horns, lenticular, and two-edged in cross-section, the so-called 'goat-horned' or turbary sheep (*ovis aries palustris Rütimeyer*). Conclusive evidence is not yet available as to the provenance of this breed. Keller, who did much work on the subject, laid special stress on the resemblance of the turbary to the Bündner or Nalpser sheep found in the Swiss Alps (canton Grisons), especially in skull and horn formation. Since, besides this, these breeds have a relatively long tail reaching to the hocks, Keller postulated such a feature for the turbary too. The hypothesis that it was derived from the African maned sheep as a wild ancestor is untenable, for the reasons given at the beginning of this paper. Keller also believed that he could see a counterpart of the turbary sheep in certain Greek representations dating from the Mycenaean period, which show a tail of like length and horns curving behind the head in a peculiar manner. But Lydekker points out that this horn-formation exactly corresponds with that of the Cypriote Mouflon, which in addition shows the same cross-section. So, on the hypothesis that the Mycenaean representations are those of domestic sheep, he regards the Cypriote Mouflon as their ancestor. Duerst also investigated the question; basing his theory on the finds at Anau, he would derive the turbary from *ovis arkal*. But the evidence of period on which he relies has now been shown to be false. I myself have drawn attention to the fact that the cross-section of the horn is that of ewes of all kinds and breeds, or of young rams, and that therefore the horn-formation can be explained as the result of arrested development following domestication and stunted growth. It is certainly strange that the investigators of the turbary sheep, with osteological material before them, never remarked upon this; for a distinction between the horns of the sexes is elsewhere never lacking. I had then already expressed the suspicion that possibly till now the examination of the turbary had been confined to specimens of ewes or young rams. This has since been confirmed by Reitsma, who, besides examining the remains from the Terpen of the Netherlands, has also investigated the turbary sheep of the Swiss lake-dwellings. From the latter source a second variety of strong-horned breed had been described by Duerst (*ovis aries Studeri*), who assumed that its first appearance in Switzerland was in the Copper Age. But Reitsma showed that the remains of the turbary and of the supposed 'Copper-age' sheep appear contemporaneously together and that the latter is the ram, the

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former the ewe of the same species. Its modern descendants, little modified, can be seen in the Drente breed, the heath-sheep of the Netherlands, a long-tailed animal and, according to illustrations, with a fairly coarse, smooth wool. Similar primitive sheep are also found elsewhere in remote places away from trade-routes, as for example those of Sardinia, which show a tendency to possess more than one pair of horns. To the same group belong, or probably belonged originally, all European long-tailed breeds. Today they have been much refined by crossing with breeds of other ancestry, notably Merinos, an improvement which took place especially in the first half of the last century. It is from such cross-breeding, which certainly dates back much further, that are derived the various types of milch-ewe found on the coast from Schleswig-Holstein round to the Pyrenees. Of these, I may mention here the Frisian ewe, one of the largest of domestic sheep, standing nearly 36 inches at the shoulder and weighing as much as 220 lbs. They yield up to 500 kilograms of milk a year. Both rams and ewes are hornless.

It is from the ancient turbary sheep that are probably also descended those small, quite primitive, short-tailed beasts found in the Faroe Islands, Orkneys and Shetlands, and again in Iceland, Scandinavia, and on the heaths of north and northwest Germany, where the *Heidschnucke* of Lüneburg is well-known. An especially primitive representative of this species was, until recently, found on the island of Soay, in the St. Kilda group. They are small animals, only some 24 inches shoulder-high, with never more than one pair of horns, although other breeds in this group show a tendency to have several pairs. The horn-formation in the rams is that of the wild Mouflon, and corresponds also with that of the so-called Copper-age sheep. A high percentage of the ewes (one-third) are horned. Further, their horns are often fairly long and powerful, and agree both in form and position with those of the Copper-age sheep. The colour of the upper parts is a dull blackish brown, the underparts are light. A small light patch or *speculum* decorates the rear part of the hindquarters ; on the back itself this patch is divided into two parts by a stripe connecting the rest of the back with the tail, also blackish-brown. A mane of long black hair grows on the underside of the throat and along the neck. The breed may possibly be derived from *ovis Vignei*, seeing that it lacks the saddle-patch ; but the form of the divided *speculum* and the shape of the horns rather suggest relationship with the Mouflon group. The lack of a saddle-patch need be no argument against this, for such a

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patch is not an invariable characteristic of the group : in the summer coat it is often practically invisible, if not completely so. It is also absent in the young animals, sometimes even in the old too, besides being occasionally lacking in the winter coat ; this is shown by a ram of the European Mouflon breed now in the Berlin Zoological Gardens (PLATE IV). So if we look for the ancestry of the European short-tail in the Mouflon group, it need not necessarily be the European Mouflon itself. Apart from the reasons already mentioned, a point against it is the length of mane in the Soay breed : the European Mouflon has the mane so short that many investigators have entirely overlooked it. In the Soay breed it consists really of rather longer hair, but many of the Asiatic types possess fine manes. Therefore it is from the Asiatic variety that we must derive this breed, without at present being quite definite as to the manner of descent. The wool of the Soay sheep is short, about 1-1½ inches in length ; they moult like other animals, another primitive characteristic. 'If not shorn in the spring, the fleece is gradually shed during the summer in large blanket-like masses'. Then the sheep are rounded up and what can be plucked is removed by hand. They are never shorn in the proper sense of the term. This breed shows close affinity with the clay figure of a ram recently found at Jordansmühl in Silesia, and this is probably the best, if not the only, pictorial representation of the turbary (PLATE V).

Apparently our modern fleeced sheep (a later development) also go back to these Asiatic herds. Perhaps the legend of the Golden Fleece may show that the origin of the fine-fleeced sheep was quite well known in antiquity. For a long time this breed attained a specially high standard in Asia Minor (PLATE VI) ; Sardis and Miletus in particular were famous wool-producing centres, with other places hardly less well known. The wool-trade of Miletus was widespread, with markets in Ionia, Attica (PLATE VII), Magna Graecia, Sicily (PLATE VIII), and Rome. No wonder then that people became anxious to make wool a home product and to be independent of foreign trade. It is expressly stated of Polycrates of Samos, who was desirous of raising the standard of cattle-breeding in his own land by importing the best breeds from abroad, that he brought fine-fleeced sheep from Miletus to Samos. The Phoenicians seem to have done much to cause the spread of the breed, especially in North Africa after the foundation of Carthage. Where they came, they brought their sheep with them, so that very soon we find the fine-fleeced species introduced into Spain. But it was probably the Romans who laid the foundations of the famous Spanish breed of sheep.

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Columella (vii, 2) tells how his uncle sought to improve his sheep by importing breeds from Africa. Probably the Romans did a great deal of such importation, with the result that sheep-breeding reached a specially high standard in Spain, since the climate must have been very congenial. So we learn from Strabo that the finest wool came from Spain, and that Spanish rams fetched a very high price. Further importations may have taken place under Moorish rule. Peter IV of Aragon used Moorish and Berber sheep to improve his stock. In this way Spanish sheep-breeders reached the pinnacle of their fame in the 18th century, with their so-called Merinos, the only fine-fleeced sheep with curled wool. With their help the French state sheep-breeding industry was founded at Rambouillet in 1777. The first Merinos came to Germany in 1765, through the Elector Frederick Augustus of Saxony, and the breed so established was called 'electoral' in his honour. The Empress Maria Teresa first brought 300 Merinos to Austria in 1775, and a later batch was imported from the Spanish herds of Infantado, Guadalupe, and Negretti; this caused the name of Negretti to be given to these Austrian Merinos, which were remarkable for their wrinkled skin and long wool. So practically all the good wool-producing breeds on the continent today have descended more or less from Merino strains, while the mutton-producing types are based more on English breeds. It is true that Merinos have more than once been imported to England, but the climate did not seem to suit them and they were never able to develop far.

To sum up, we find three lines of ancestry for the domestic sheep, all to be looked for in Asia:—(1) the Asiatic Mouflon, (2) the *Vignei* type, (3) the Argali. The third of these is of no importance for European breeds.

Notes and News

THE ROCK SHELTER AT CAP BLANC (PLATES I-IV)

The rock-shelter of Cap Blanc, famous for its remarkable sculptured frieze, has not received in this country the attention it deserves. This is, perhaps, largely due to the fact that there exists no adequate description of the site in English, while the French records are not easy of access to the average student. This shallow, limestone rock-shelter was first discovered by Dr Gaston Lalanne in 1909 and lies on the right bank of the Beune, a tributary of the Vézère, seven kilometres from the village of Les Eyzies in the Dordogne. The site consists of a large terrace in front of the shelter containing the sculptures high up on the steep hillside overlooking the river; the shelter itself, which measures 15 by 4 metres, and a semi-circular inner chamber, measuring about 5 by 4 metres. This chamber and a small area in front of the carvings was carefully paved with slabs of stone.

The age and authenticity of the rock-sculptures, the existence of which was not suspected at the beginning of the excavations, are indisputable, since they were almost entirely covered by undisturbed Magdalenian talus deposit, a certain amount of which still remains unexcavated. This deposit consisted of a shallow upper layer containing only some bones of reindeer and a few worked flints. This was followed by a sterile layer, below which the filling proved rich in finds of Early Magdalenian date including representative artifacts in bone and flint. Besides these were discovered a series of stone tools, much larger in size, coarser in type, and unusual in shape.* These were recognized as being eminently suitable for the execution of carvings, and indeed bore a striking resemblance to the equipment of a modern sculptor. An oblong palette of stone, measuring 27 by 15 cm., was also found, with red ochre paint mixed upon it. Various small carved articles occurred, including sketches on fragments of bone, among them a horse's head, the head of a reindeer, and several indecipherable marks and chevrons. Two carved 'batons de commandement' were found, but even more interesting than these were a human

* 'Parmi ces séries, il existait à côté des silex magdaléniens classiques (grattoirs sur bout de lames fines, burins abondants, perçoirs, etc.) toute une série de pièces en général beaucoup plus volumineuses et plus grossières, les unes prismatiques et taillées à grands coups, d'autres constituant de très gros burins, et enfin d'autres, plates, avec une sorte d'épais tranchant et formant comme de puissants racloirs'. Capitan et Peyrony, *Revue anthropologique*, 1912, XXII, 441.

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foot with four toes and a small ivory beetle pierced for suspension. In the lower strata were found large fragments of limestone which had become detached from the rock in Early Magdalenian times, and upon one of these was carved a bison, 50 cm. in length. It would appear that most of the finds from the site are at Bordeaux in the private possession of Madame Lalanne, the widow of the excavator.

The sculptures still visible on the wall of the shelter consist of a frieze of horses and six other carvings. The latter represent the head of a possible reindeer, almost entirely covered by natural accretion, the heads of two other indeterminate animals, the head of a horse, and two small bisons both of which have been partly destroyed. These carvings are in low relief, are small in size, and may all well be of a later date than the main frieze. This is sculptured in high relief and, in the writer's opinion, may challenge comparison with the finest art of classical antiquity. It consists of six horses, of life-size, divided into two groups of three. It will simplify description to take the animals from left to right, numbering them accordingly.

Horse no. 1 (PLATE I) which faces towards the right, is shown standing quietly with its head down, and, worn and damaged as it is, astonishes by its living quality. The mouth and nostrils are still particularly perfect in detail, but part of the back, through prolonged exposure, is covered by an extremely hard deposit, while the end of the tail and the lower part of the legs have been destroyed. The relief in the centre of the body is about 30 cm. and that of the head about 10 cm. Horse no. 2 (PLATE II), also facing towards the right, is smaller than the foregoing, giving the impression of being represented in perspective as if further from the observer. Moreover part of the hindquarters are hidden by the head of horse no. 1 in the foreground. The head, the lower part of the body and the hind legs, have been destroyed, as well as the forelegs below the knee, although these can still be faintly traced as far as the hooves. Horse no. 3 (PLATE III), measures 2.15 metres in length; it faces in the opposite direction from the previous two. The whole of the lower part of the animal came below the zone of calcareous rock upon which the frieze was principally carved, and is no longer distinguishable. In the case of the end of the muzzle the outline may still be traced although the surface form has been destroyed. What remains of the animal is exquisitely modelled in smooth curves. The mane, as in every case, is left vague, but the short upstanding hairs are suggested by finely engraved lines. On the other hand the forelock is clearly modelled in relief. There are

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incisions on the head which suggest a halter ; indeed one running down the side of the face is difficult to account for otherwise, although another above the jaw might be explained as a fold or wrinkle where the head joins the neck. Both the swell of the jaw and the muscles of the neck are very simply and beautifully rounded. Traces of ochre were found on the head and neck when first uncovered.

The second group may be seen a short distance to the right of the first, and is of hardly less interest. Horse no. 4 faces towards the right. It is apparently unfinished. The neck, chest, and upper foreleg are in very high relief, the line of the back and rump clearly but not deeply carved, while the head, with the exception of the ear and upper part of the forehead, is only slightly outlined. Horse no. 5, again facing to the right, is represented as standing slightly behind no. 4. The head was probably unfinished, but the whole carving has suffered extensive damage. Horse no. 6, which presents an interesting example of carving in perspective, faces the left and is turned away from the spectator, so that only the hind quarters are seen. It also is apparently unfinished and is in medium relief. Traces of paint, consisting of red and yellow ochre, and apparently black manganese, still remained on this second group of carvings when first excavated.

Some time after the excavations at the site had been completed, workmen engaged on erecting a shelter to protect the monument discovered a crouched burial. This, on being reported to the authorities, was duly excavated. It consisted of a skeleton, almost complete, lying in the lowest level, and at a distance of 2.3 metres from the paved area in the shelter. No grave goods were found, but stones lay under the skeleton, as well as at its head and feet. A glass case, which may be seen in PLATE IV, contains a cast of the skeleton lying in the position in which it was originally found.

D. EMERSON CHAPMAN.
ALEXANDER KEILLER.

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GERGOVIA

The site identified since the 16th century as the Arvernian oppidum of Gergovia, successfully defended by Vercingetorix against Caesar in 52 B.C., lies a few miles to the south of Clermont-Ferrand and is an oblong basalt plateau running east and west, $1\frac{1}{2}$ kilometres in length by over 500 metres in breadth, reaching 744 metres above sea level, and rising over 300 metres above the surrounding plain.¹ Excavations on a modest scale have been conducted here for the past two years² by the *Comité Pro Gergovia*, formed under the auspices of the Académie de Clermont in 1934, mainly owing to the energy of M. Emile Desforges, who had been collecting surface finds on the plateau for some years and who had already made tentative soundings in 1932 and 1933. An additional impulse towards the formation of the committee was supplied by the local interest aroused through the controversy over the rival site to the north of Clermont-Ferrand;³ but our site was regarded as of sufficient promise in itself, whatever its history, to render its investigation worth while.

FORTIFICATIONS

The obvious starting-point was the great grass-covered stony bank, still in places two metres high, which runs for several hundred metres along the southern edge of the plateau and which, though much lower, is still visible along part of the west side. In the centre of the southern mound there has been found and followed for over 100 metres a dry wall of small, roughly-cut blocks of basalt, which appears to be the inner face of a rampart of stone and rubble (FIGS. 1, 2). The outer part of this rampart, and with it the face and any berm there may have been, has slipped down the hillside; but immediately below it the basalt of the plateau, which in any case tends to form cliff-like faces, was cut away to leave a perpendicular drop, still over 2 metres in depth, to the small terrace beneath. This cutting was laid bare for 3 or 4 metres at two places about 175 metres apart. The system as so far elucidated is illustrated in the diagrammatic section (FIG. 1). A wall has also been recovered at three points at the western end of the plateau and it is hoped to continue work there in 1936. Nothing resembling a *murus gallicus* has been observed.

¹ ANTIQUITY, 1933, VII, 216-9.

² *Revue Archéologique*, 1935, 220-230, has a brief account of the work done in 1934 (on p. 229, line 7, *for avant read après*).

³ ANTIQUITY, *loc. cit.*, and 1934, VIII, 117.

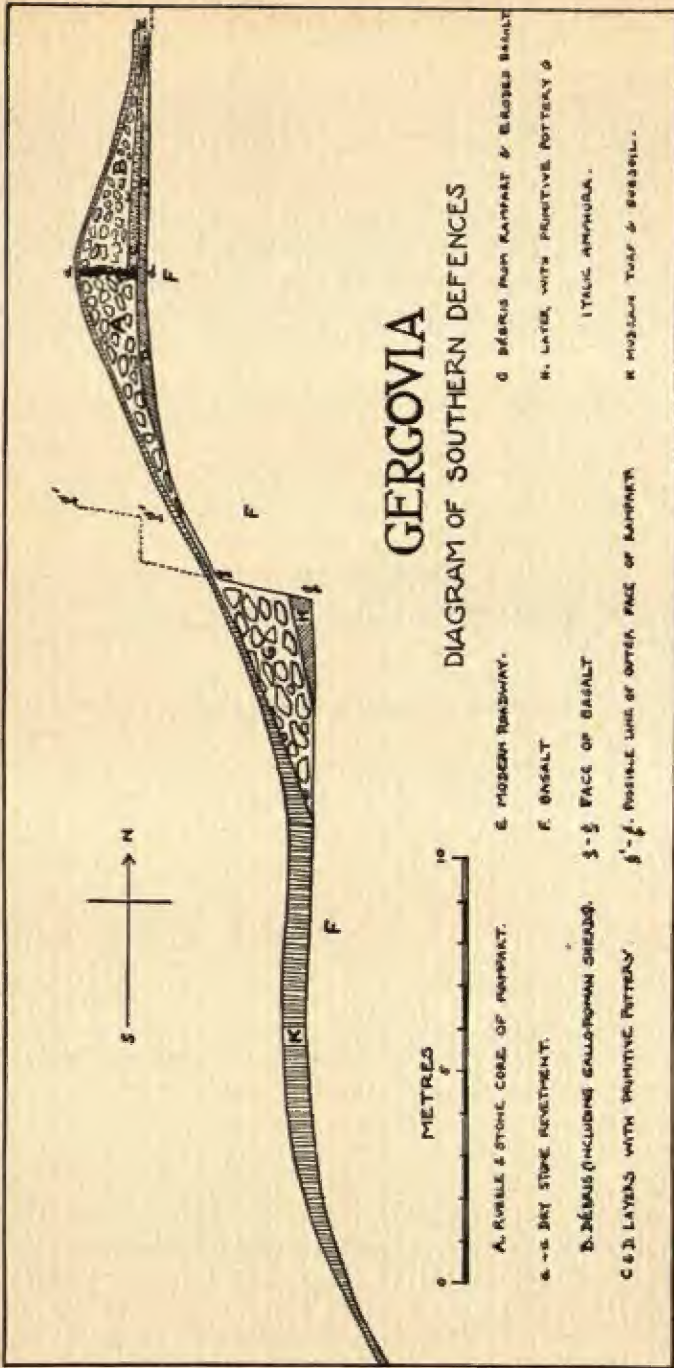


Fig. 1

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A curious feature of the southern rampart is the existence, at distances varying from 5-12 metres, of stone structures averaging 1.60 metres in width and sometimes reaching over 5 metres in length, abutting on the inner revetment wall (FIGS. 2 and 3). They may conceivably have served the double purpose of buttresses to the badly-built rampart and of ramps of access. Ten (or possibly 11) have so

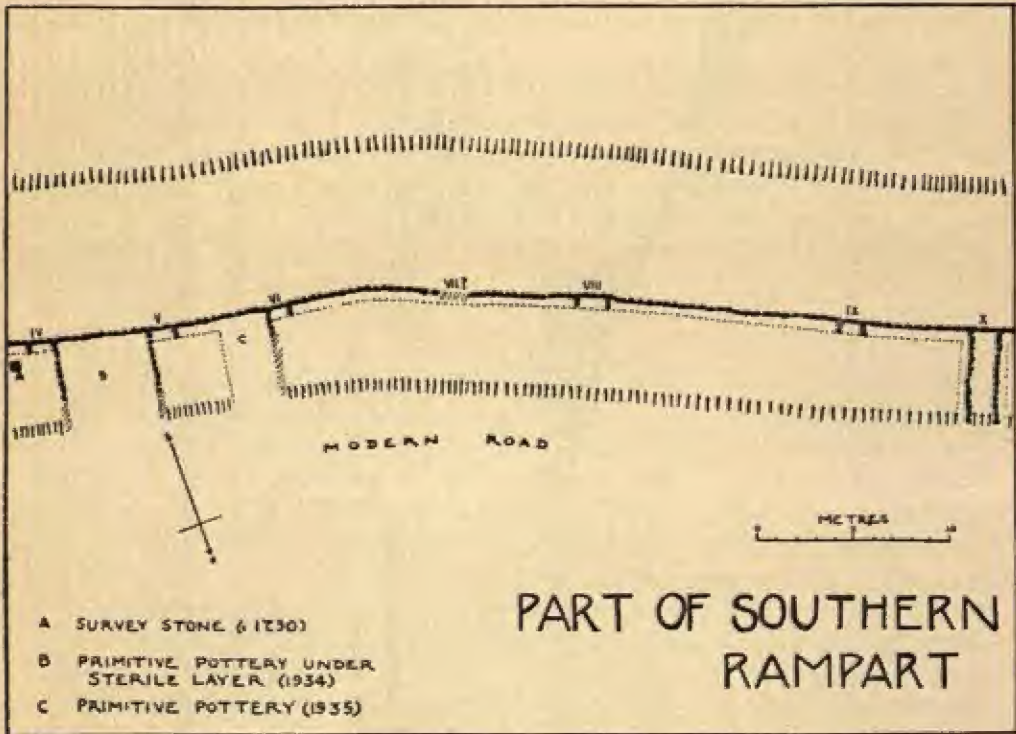
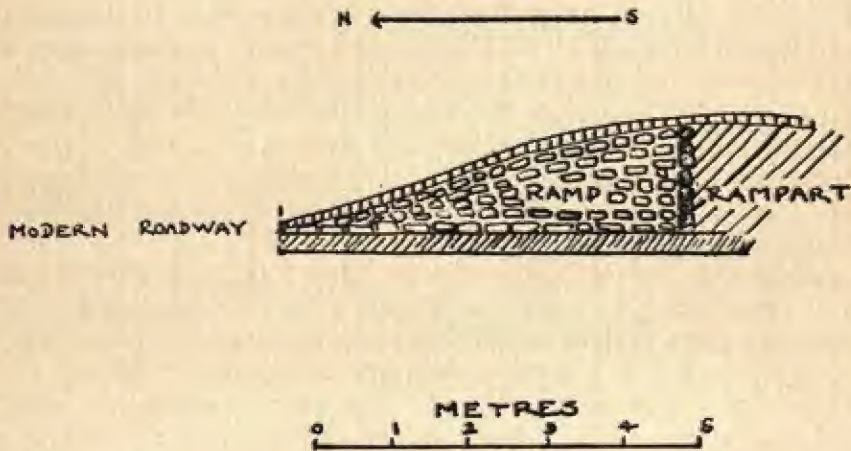


FIG. 2

far been found. Neither they nor the rampart show uniform construction. The revetment is sometimes well built of carefully prepared stones, resting on the basalt; at other points the rampart seems to have been just thrown up on the soil of the day and the revetment and ramps may rest on this or on rubble. The area between ramps IV and V was carefully cleared by Mr Christopher Hawkes in 1934, but no post-holes nor any signs of constructions between them were observed.

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He found, however, a good deal of primitive pottery, similar to sherds beneath the rampart in the preliminary trench cut in 1933 ; it was separated from the surface pottery of Gallo-Roman date by a sterile layer, and occurred at other points near and below the rampart. It is reminiscent of Hallstatt or even Bronze Age forms but might be as late as Early La Tène in *date*. It has clearly no Roman connexions. Under the rampart were also a few tanged and barbed flint arrow-heads and a bronze arrow-head. At the foot of the scarp more pottery was found, sealed under the débris which had fallen from the rampart and



RAMP X (ELEVATION)

FIG. 2

the eroded basalt edge above. This pottery was also primitive, but more definitely La Tène in character. With it were fragments of a painted italic amphora of the period of the Roman conquest, and about 350 sling-stones. These stones were also found in quantity elsewhere along the rampart ; they are rounded pebbles from the streams in the valley below. In excavating between the ramps occasional Roman tiles and pieces of Roman pottery were found, and at one point lumps of mortar and other building débris occurred, which suggests that the space between the ramps remained open for some time and that when the land near by was cleared the rubbish from ruined buildings tended to be thrown up against the old rampart.

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EXCAVATION WITHIN THE OPPIDUM

The great difficulty presented by the site is the stone heaps, some over 2 metres in height, scattered about the fields, the products of the *épierrage* practised for many centuries by the industrious Auvergnat cultivators.⁴ Aucler⁵ in 1862 conducted excavations at various points in the centre of the plateau, and in one case opened parts of a large building recalling the houses of the Parc-aux-Chevaux at Mont Beuvray. A corner of this building was uncovered in 1934 and found to correspond to his measurements. Certain additional features were noted, including a tile-drain leading through the house, perhaps from an interior court, to a rubbish pit outside. The building is clearly Gallo-Roman, and in certain respects (such as its good ashlar walls, carefully laid and mortared) more advanced than the Mont Beuvray buildings. There was an abundance of Roman tiles, painted plaster, etc., and, in one room, the remains of a mosaic floor of white tesserae with occasional black ones. Signs of structural alteration were apparent (the drain in particular appears to be secondary).

About 100 metres further north other buildings were brought to light in 1934 and 1935. The west side of one (FIG. 4) was fronted by a portico 54 metres long of rough flagstones resting on undisturbed earth, with, at intervals of 4 metres, columns of segmental bricks, some of which rested on limestone bases. The portico seems to have been roofed with tiles, of which large quantities were found. In the centre the portico broadens out into an entrance from which a flagged passage or path leads eastwards. The whole structure is an enclosure formed of a narrow range of buildings, of which the north side, the northeast corner, the east side and the west side have been in part recovered. The soil is very shallow on the south side, and no walls have been found, though there are abundant remains of building refuse. The enclosure recalls the Mont Beuvray market-place. Within it a small square Romano-Celtic temple of the usual type has been partially unearthed. Between the west side of the enclosure and the temple the ground is covered with flagstones, under which, at one point, a small pit containing pottery like that from Aucler's villa was found. A particularly formidable stone heap still covers most of the temple site and from it have been picked fragments of carved limestone, including

⁴ ANTIQUITY, 1934, VIII, 117.

⁵ P.-F. Fournier, 'Les Fouilles de Gergovie depuis le XVIII^e siècle'. *Rév. d'Auvergne*, 1935, 153-169.

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the volutes of a capital. It was, however, possible to find the four corners of the outer temple wall, and then part of the inner (cella) wall.

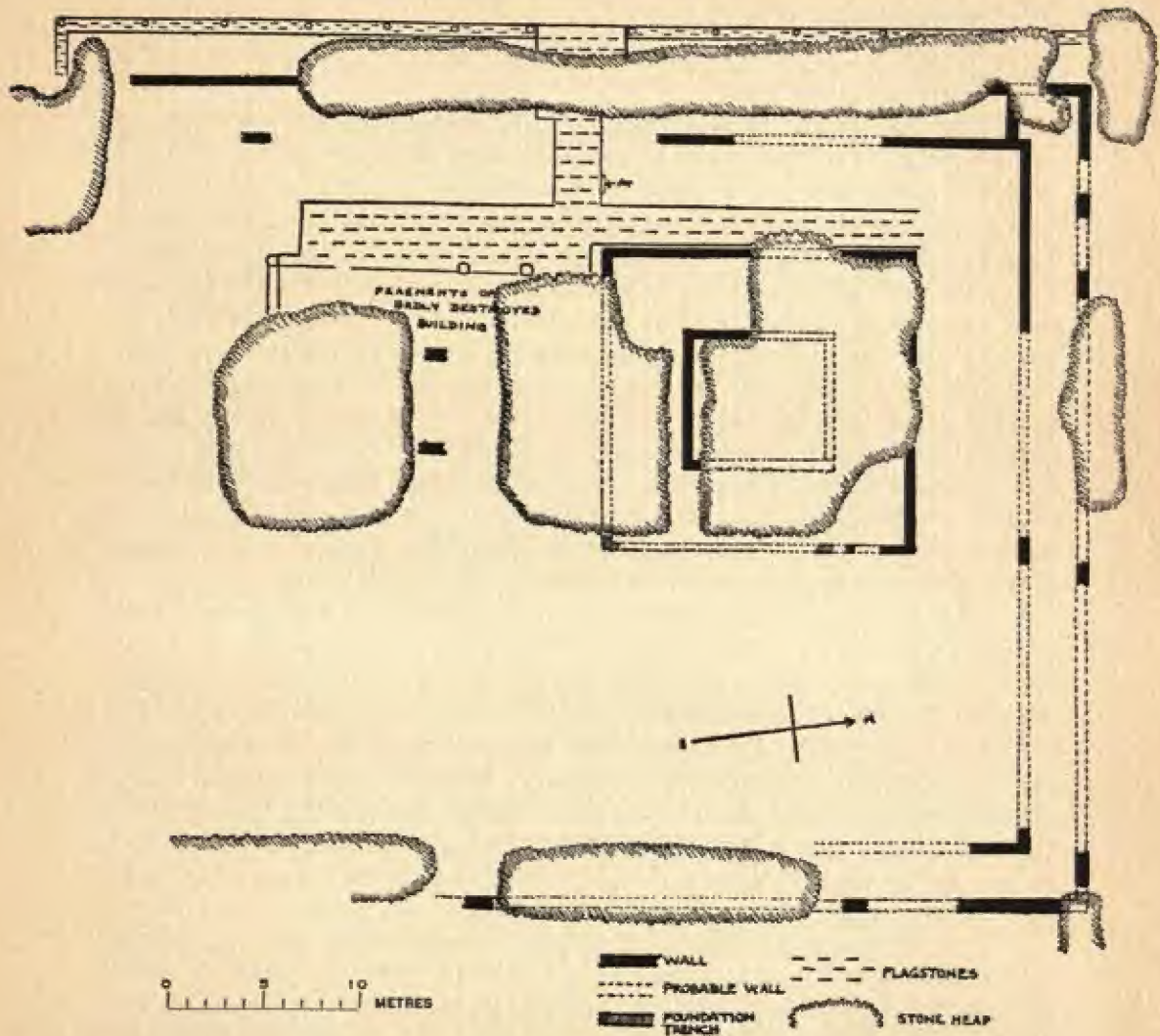


FIG. 4 GERGOVIA: GALLO-ROMAN TEMPLE AND ENCLOSURE

The southwest angle of the latter was found, and then a way cleared through the stone heap to the southeast angle. Both compartments

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of the temple had a floor of a kind of *opus signinum*—smashed-up potsherds embedded in cement—and the southeast angle of the cella, where the wall was completely broken, was established by means of the gap between the two pavements. The interior of the cella, except for a half-foot or so, is still covered with tons of stones which it is hoped in time to remove.

The pottery of the buildings just described has many features in common with the later pottery found at Mont Beuvray, which is hardly earlier than the last quarter of the last century B.C. It is predominantly Gallo-Roman in type, and some stamped Augustan Arretine occurs. In and near the temple enclosure Rutenian and Lezoux stamps were found, and decorated Lezoux ware of the second century, but none of these later fabrics have so far been unearthed in Aucler's villa or its rich rubbish pit. A few Gaulish coins (Arvernian types) have been found on both sites ; in the temple enclosure were found two coins of Trajan. The occupation of the temple area thus pretty clearly lasted into the second century A.D., but Aucler's villa, so far as is known, may have been abandoned early in the first century, near the time when Clermont (Augustonemetum) is believed, on the analogy of Autun, to have been founded. It would not be surprising to find that a sacred site lasted on after the rest of the town had been shifted.

The pre-Roman habitations still proving elusive, a search was begun on the southern side of the centre of the plateau, where there is a dip in the ground and where primitive man would be a little better sheltered. The most ancient known track across the plateau comes up from the valley at this point, and it was here that Aucler believed that he had found a gateway through the rampart. Near the track there is a well of stagnant and undrinkable water. A couple of hundred metres down the slope there is a trough fed with water from a spring which cannot be far below the gateway, and which must have been one of the chief sources of supply for the original inhabitants.

Pits were dug at three points in the hollow and large quantities of pottery were found, suggesting a fairly intensive occupation of the neighbourhood, though as yet no actual huts can be vouched for. Most of this pottery would appear to be Gallo-Roman in character, though it has not yet been fully examined. Five Gallic coins were found, and also fibulae of La Tène III type. There were also a number of fragments of iron slag and a few small pieces of bronze slag, suggesting that metal working went on in this quarter.

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It is not yet possible to make definite statements as to the history of the plateau, though it is obvious that it was occupied with surprising intensity in the period immediately after the Roman conquest. The Roman sites so far attempted are but a sample of what must have been the total, judging by the quantity of Roman tiles found in nearly every part of this large area, and judging by the number of points where local peasants state that in digging they have come across masonry. These sites are not without value because of the light they may be expected to throw on a much-neglected period of Gaulish history, the hiatus between the conquest of Caesar and the reorganization of Augustus. It may also be hazarded that if this site had had no importance before the conquest it would be hard to understand why it should suddenly have become so thickly inhabited.

As regards the rampart, there appears to be enough evidence to set it before the Roman conquest. So far no Roman pottery has been found beneath it and its rough workmanship bears no trace of Roman technique. The pottery beneath and around it is entirely different from that of the Gallo-Roman sites. Various datings have been proposed for these sherds, but the general tendency is towards the view that pottery of this sort lasted on in this mountainous region with very little change through at least the later Bronze and the Iron Ages to the eve of the Roman conquest.

OLWEN BROGAN.

N. LUCAS-SHADWELL.

CINEMA-PHOTOGRAPHY AND PREHISTORY¹

So far as I am aware, no notice has been taken by the moving-picture industry of L. Zoltz's² praiseworthy efforts to bring German prehistory before the public on the films. It may perhaps be unfortunate that our science is thus deprived of a useful aid to publicity, but on the other hand it must be admitted that the execution of such films by the trade involves a risk of their becoming too 'filmy'. For the industry always attends more to producing a motion-picture effect than to the objective ends which we, as specialists in a profession, have in view. A film of the kind in question should not only consist of pretty pictures: it should rather, by virtue of its special character,

¹ 'Urgeschichte', which of course comprehends also protohistoric and early historic time. There is unfortunately no corresponding word in English, though such is badly needed. (TRANSLATOR).

² *Nachrichtenblatt für Deutsche Vorzeit*, IX, 50-52.

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reveal the true nature of our science. Only an expert, therefore, can be in a position to satisfy these demands.

With this in mind, in the spring of 1935 I began with private help to use a sub-standard film camera for taking films of a purely scientific character. I decided to use a Cine-Nizo, model D (16 mm.), with a Steinheil-Cassar lens (aperture f 2.9, focal length 25 mm.); besides the normal speed of 16, this camera has also speeds of 8, 24, 36 and 64, as well as an arrangement for trick-photography. It is absolutely necessary that the camera should be fitted with these variations of speed, as it must be able to take quick-motion photographs and, above all, slow-motion ones. The Cine-Nizo is equipped for reels of a length of 15 and 30 metres. Various projectors are possible; a Kodak, model D, with a 300 watt lamp,³ is quite adequate for a medium-sized lecture-room.

In 1935 I made three films, of interest both for specialized teaching and to the general public. The first was staged in a pottery-works, and shows, besides the wheel-system, the other methods employed in primitive times for the making of pots. If the potter is clever, a number of scenes can be staged without much expenditure of his time or any special supervision. A film of such a kind will be of use in supplementing the less graphic verbal narrative, on occasions when instruction is being given on primitive technique, and will also provide the general public with a valuable illustrative commentary on the history of a handicraft. The end of the film shows a reconstruction of a La Tène potter's kiln (dome-shaped), set up in his garden by one of my pupils. During the next few months I hope to construct motion-pictures illustrating other branches of technology: for instance, flint-work and bronze-casting.

The second film was made during my last excavations. First I showed the typical mining area on which I was engaged at the time; this entailed much work in constructing the film. Then the actual excavation was recorded, in so far as the various devices were important to illustrate procedure. Such a picture, again, is useful both for teachers and for the general public.

In the third of these pictures, I staged part of the work of a museum demonstrator (*Präparator*), particularly the difficult task of reconstructing a pot whose shape is known only from an imperfect profile. For these laboratory photographs I used a Nitrophot lamp, Marke Matelux,⁴ of 500 watts, giving a strong enough light to take large

³ 400 watts in Germany. (TRANSLATOR).

⁴ Any 500 watt lamp may be used, e.g., the Kodalite.

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pictures (*Grossaufnahmen*), with full aperture, at a distance of from one to two metres. This lamp can be used also for infra-red photography.

I could not afford to adapt the 16 mm. film for sound-recording (the necessary Siemens-Halske projector⁵ costs about 3000 Austrian shillings), so that descriptive narrative had to be given before each scene. Besides the rest of the work connected with the film, I am in the habit of setting up the captions also, which are first drawn by an expert draughtsman in black Indian ink on white drawing-paper. For the photograph itself I use the Universal caption bench ('Utiba'), the invention of a Viennese photomechanician. With the aid of a projecting Proxar lens and by orienting the camera with a goniometer, it is not difficult to secure the captions in the film. For this purpose, cheap positive film may be used, which gives a clear white script when developed. A simple and easily legible style of lettering must be used. I generally employ for the scene-pictures the Agfa or Kodak reversible film; the former has the advantage of giving as good results for a slightly lower price.⁶ When it is adapted as a Panchromatic film, it is not necessary to use a yellow screen in the open air.⁷

Films are also of importance for demonstrating purely scientific and specialist problems. To give an example, I have sometimes, during a lecture on the relationships of cultures in Europe in the Bronze Age, shown a film which makes cultural movements and influences clear at a glance. I am planning to make a film showing a reconstruction in my own particular field of research. In this way it might some day be possible to film scenes from the life of our ancestors; such films, which of course must be quite faultless, would be assured of success in educational circles.

On the technical side, it must be emphasized that an experienced photographer—and such should every prehistorian be, for photography is an essential qualification in our profession—will hardly find any difficulty in learning to use a film-camera. The exposure alone will present any problem; and that is already partly solved by the fact that the new 9.5 mm. Eumig camera is constructed with a selenium-cell which gives an automatic approximate estimate of the strength of the light.⁸ Most of all one has to consider the correct composition of the scene and its

⁵ In England a Gaumont-British Projector would be suitable, costing £80.

⁶ In England both films are the same price.

⁷ A Kodak expert told me that this may not always prove advisable. (TRANSLATOR).

⁸ I am informed that the same result is obtainable by the use of any photo-electric cell meter, of which a number are on the market. (TRANSLATOR).

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value as a film. That is important, because too much wastage soon becomes unpleasantly expensive. The operator's chief efforts are concerned with the length of the scene; it must be neither too long nor too short, because otherwise either the attention will flag or it will not be possible to grasp the meaning of the picture. As an average, one should not waste more than 5 metres in a 30 metre film.

I hope that these short notes have shown the importance of the sub-standard film for our purposes; and I shall be particularly glad to have my own experience supplemented from other sources. Opportunities for using the camera are plentiful, considering how active excavators now are in every country, especially of course in England, where, thanks to the enterprise of O. G. S. Crawford, great attention has long been directed to the pictorial illustration of every kind of monument.

N. PITTIONI.

TWO AXES OF PRESELY STONE FROM IRELAND (PLATES V-VI)

In 1926 while making an examination of some hundreds of stone axes from different parts of Ireland which had previously formed part of the Knowles collection, I suggested that one of these (PLATE V) had been made of the dolerite from Presely, *i.e.*, the rock from which the so-called Blue Stones at Stonehenge were made, and this identification was subsequently confirmed by the late Dr H. H. Thomas. After the death of Mr Knowles, the remainder of his collection of Irish stone axes and adzes passed into my possession and among these I identified one further specimen (PLATE VI) of the same material. The provenance of the former specimen was clearly established, it having been found five feet deep in the peat of Carclinty Bog in county Antrim in association with other stone axes and many flint flakes. The latter specimen, however, is simply described as having been found in county Antrim.

Further specimens occurred in the same collection which suggested, but not so clearly, porphyritic diabase. Petrological identification of unfractured ground and polished implements is frequently unreliable, and pending thin sections being taken from these specimens I hesitate to make a definite claim in their regard.

In the hope of discovering further examples of implements made of this rock, I circularized various Irish museums, but unfortunately with a negative result. None the less, in view of the welcome increase in general interest in the petrological identification of the material from

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which axes and adzes have been made, it is possible that further specimens may, in the near future, be identified.

In this regard it would not be out of place here to enumerate examples of implements of 'Preselite' in England and Wales. England has produced a single example—the cutting end of a very small axe or chisel from Stockton Earthworks¹ (ten miles northwest of Salisbury) which is now in the Salisbury Museum. From Wales four examples have hitherto been recorded, all of perforated axe-hammers of Beaker type. The sites of discovery of these specimens were as follows:—Arthog, Merionethshire;² Llanglydwen, Carmarthenshire;³ Trelech a'r Bettws, Carmarthenshire;⁴ Clap-yr-Arian, Llansantffraid Cwm-deuddwr, Radnorshire.⁵ I am indebted to Mr Stuart Piggott for drawing my attention to certain of these references.

ALEXANDER KEILLER.

A POTSHERD FROM THE STONEHENGE DITCH (PLATE VII, A)

Among the relics from the Society of Antiquaries' excavations at Stonehenge in 1920-26 exhibited in the Salisbury and South Wilts Museum are two joined sherds of pottery numbered 1610/1611. They were found in 'Crater no. 2' of the ditch, 18 inches from the bottom and at the side. Crater no. 2 is that to the east of the causeway that breaks the ditch opposite Aubrey Hole 20, near the 'South Barrow', and the depth indicated makes it certain that the sherds derive from the primary silt of the ditch, although in the report on this part of the excavations in *Ant. Journ.* vi, 4, no mention is made of their discovery. With no. 1610/11 are preserved four further sherds of identical ware with backing of shell and some chalk, but owing to the decay of their surfaces no features remain. 1610/11 however is ornamented in a distinctive manner which immediately suggests certain parallels. It has a rough chevron pattern executed in shallow groove technique, the grooves showing longitudinal striations. Such ornament is characteristic of a group of pottery recently recognized as belonging to the Early Bronze Age in Britain and including the wares from Woodhenge. The Stonehenge sherd can be paralleled from this site (*e.g.*, nos. 26, 42, 44, of Mrs Cunnington's *Woodhenge*) and may be compared

¹ *Antiq. Journ.*, vi, 16.

² *Arch. Camb.* 1930, 407.

³ *Ibid.* 1930, 407; 1935, 270.

⁴ *Ibid.* 1930, 407; 1935, 270.

⁵ *Ibid.* 1935, 278.

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even more closely, both as regards ornament and texture, with the similar sherds found in 1920 at Ratfyn, near Amesbury (*Wilts. Arch. Mag.* XLVII, 62) and now in the Salisbury Museum. A comparison made on the spot left no doubt of the identity of the Stonehenge sherd with those from Ratfyn.

The sherd is of considerable importance in deciding the date of the Stonehenge ditch, for it shows that the primary silting of the ditch was formed in the Early Bronze Age, and the evidence of the two groups of beaker fragments found on the top of this silt (*Ant. Journ.* VIII, 150, 151, 173) shows it to have been completed within this period.

The writer of this note is deeply indebted to Mr Frank Stevens, Controller of the Salisbury and South Wilts Museum, for his permission to publish the sherd, and for the photograph which illustrates it.

STUART PIGGOTT.

INTERNATIONAL PREHISTORIC CONGRESS AT OSLO.

The third and definitive circular giving prospectus and information concerning this Congress has now been issued. Copies may be obtained either direct from the Secretariat, International Congress of Prehistoric Sciences, c/o Universitetets Oldsaksamling, Oslo, Norway, or through Mr C. F. C. Hawkes of the British Museum, as secretary (jointly with Prof. V. G. Childe) for Great Britain.

The Congress meets in the first week (3rd-9th) of August. Under the presidency of Prof. A. W. Brøgger, and with Prof. J. L. Myres as one of the general secretaries, the organizing committee is getting together a programme of first-rate interest. Northern archaeology naturally takes a primary place, but contributions from almost all countries cover a wide field. From this country alone there are some thirty contributions on subjects ranging from the Stone Age in India and North Africa to Art in the Dark Ages. There will be several important papers on Near Eastern and Mediterranean archaeology, and megaliths and their relationships take a leading place among the subjects contributed from the British Isles. In fact, in the earlier as well as in the later phases of prehistory from the Late Bronze Age onwards, there will be a great deal, both from Britain itself and from abroad, of the closest concern to those interested in British archaeology. Above all, a Congress like this affords a pleasant chance of making personal contacts with fellow-archaeologists abroad—perhaps indeed this is really the most valuable thing about it.

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The subscription is 25 Norwegian crowns (about 25/-). The cost of the journey and accommodation is not great, and the opportunity not only of attending the Congress, but of seeing the magnificent antiquities that Norway has to show, is a particularly fine one. We all know something about the Vikings, but how many of us have actually seen the Oseberg ship and her wonderful store of treasures? We hope that many of our readers will go, and suggest to those who cannot that they might well subscribe all the same for the sake of the volume of 'Proceedings' which they will thus receive free when it appears. It is sure to be invaluable.

HORNS AND SKULLS ON BUILDINGS (PLATE VII, B)

With reference to the custom of affixing horns and skulls to buildings, I have noted this procedure practised by Yezidis and Kurds in northern Iraq and by villagers between Isfahan and Shiraz, Iran. Near Ba'adri the Yezidis have set several pairs of ibex horns into the base of one of their sacred buildings. This tomb of a saint, constructed in the form of an inverted, fluted cone, is typical of Yezidi sepulchres. Over the door-lintel of a Kurdish house in Āqra hung an ibex skull with horns. At Meyhir, 52.5 kilometres south of Isfahan on the main road to Shiraz, there stands a large tower with a ring of ibex horns set in the wall around the top. The ibex (*Capra aegagrus*) symbolizes strength and physical endurance, and the horns are decorative in form as well as symbolic in character.

With regard to curious scare-crows, I have seen the pelvis and vertebrae of a camel used for this purpose by Arabs in Central Iraq. In other sections of Iraq I remember that camel skulls were set up as scare-crows. This recalls the photographs taken by Mr O. G. S. Crawford in Abkhasia, U.S.S.R. (see *ANTIQUITY*, September 1935, p. 356). The accompanying illustration was obtained in 1925 within a mile of the Field Museum—Oxford University Joint Expedition camp at Tell-el-Uhaimir (Kish).

HENRY FIELD.

THE ORIENTATION OF BABYLONIAN MAPS (PLATE VIII)

Professor THEOPHILE J. MEEK, of the University of Toronto, writes:—In Eckhard Unger's very interesting article 'Ancient Babylonian Maps and Plans', in *ANTIQUITY* (September 1935, ix, 311-22), he makes no reference to the important Old Akkadian map of c. 2500 B.C. found at Nuzi. The discovery of this was announced and

illustrated in April 1931 in the *Bulletin of the American Schools of Oriental Research* (no. 42, pp. 7 ff). In a later number of the *Bulletin* (no. 48, pp. 2ff) I gave a fuller discussion of the map, and followed this up by an article in the *Annual of the American Schools of Oriental Research*, 1933, XIII, 1 ff, with a photograph on p. 12. The final edition of the map is to be found in my recently published *Old Akkadian, Sumerian, and Cappadocian Texts from Nuzi* (Harvard University Press, June 1935).

In §9 (pp. 318 ff) Unger has a good deal to say about the orientation of ancient Babylonian maps, and arguing by inference he comes to the conclusion that in Babylonian orientation the north, or more accurately the northwest, was at the top.¹ If he had consulted the map from Nuzi, there would have been no need to argue by inference, because the directions are written on the sides of the tablets, and he would have discovered that in this particular instance at least the top of the tablet is east (IM-KUR), the bottom west (IM-MAR-TU), and the left side north (IM-MIR), with the opposite side south, but the name is here unfortunately broken away. It is to be noted that the words for the directions are those that are used on the Obelisk of Manishtusu, A IX, 13 ff,² viz.: IM-KUR, 'mountain wind', i.e. 'east'; IM-MAR-TU, 'west wind'; and IM-MIR, 'fierce wind', i.e. 'north'.³ That the map is to be placed with its top east rather than north is clearly manifest from the writing on the tablet. The chief inscription in the centre of the tablet definitely requires that, as do most of the others. The only inscription that at all militates against this is the city name 'Bi-ni-za-' which name was manifestly written by the scribe when he had the tablet turned to write the directions 'north' and 'south' on it.

The fact that the map from Nuzi is so definitely oriented with 'east' at the top raises the question whether Unger is right in maintaining that the maps which he discusses are oriented with the north or northwest at the top. He is unquestionably right in his contention that Babylonian 'north' is strictly 'northwest', as has long been apparent to scholars, but there is nothing to prove that any of his maps are oriented with the northwest at the top. It is possible, but not certain, and the map from Nuzi would make it very improbable. The Babylonian map of the world proves nothing, because it is crudely

¹ So also Langdon, *The Museum Journal*, VII, 263.

² Published by Scheil, *Délégation en Perse*, II, 6 ff.

³ In the later period the name for 'north' came to be IM-SI-DI, i.e., 'favourable wind'.

PLATE I



HORSE SCULPTURED ON WALL OF ROCK-SHELTER, CAP BLANC NEAR LES EYZIES, DORDOGNE : MAGDALENIAN PERIOD (See p. 208)
/a, Alexander Keller

PLATE II



HORSE SCULPTURED ON WALL OF ROCK-SHELTER, CAP BLANC NEAR LES EYZIES, DORDOGNE : MAGDALENIAN PERIOD (See p. 204)

Ph. Alexander Keller

PLATE III



HORSE SCULPTURED ON WALL OF ROCK-SHELTER, CAP BLANC NEAR LES EYZIES, DORDOGNE : MAGDALENIAN PERIOD (See p. 208)

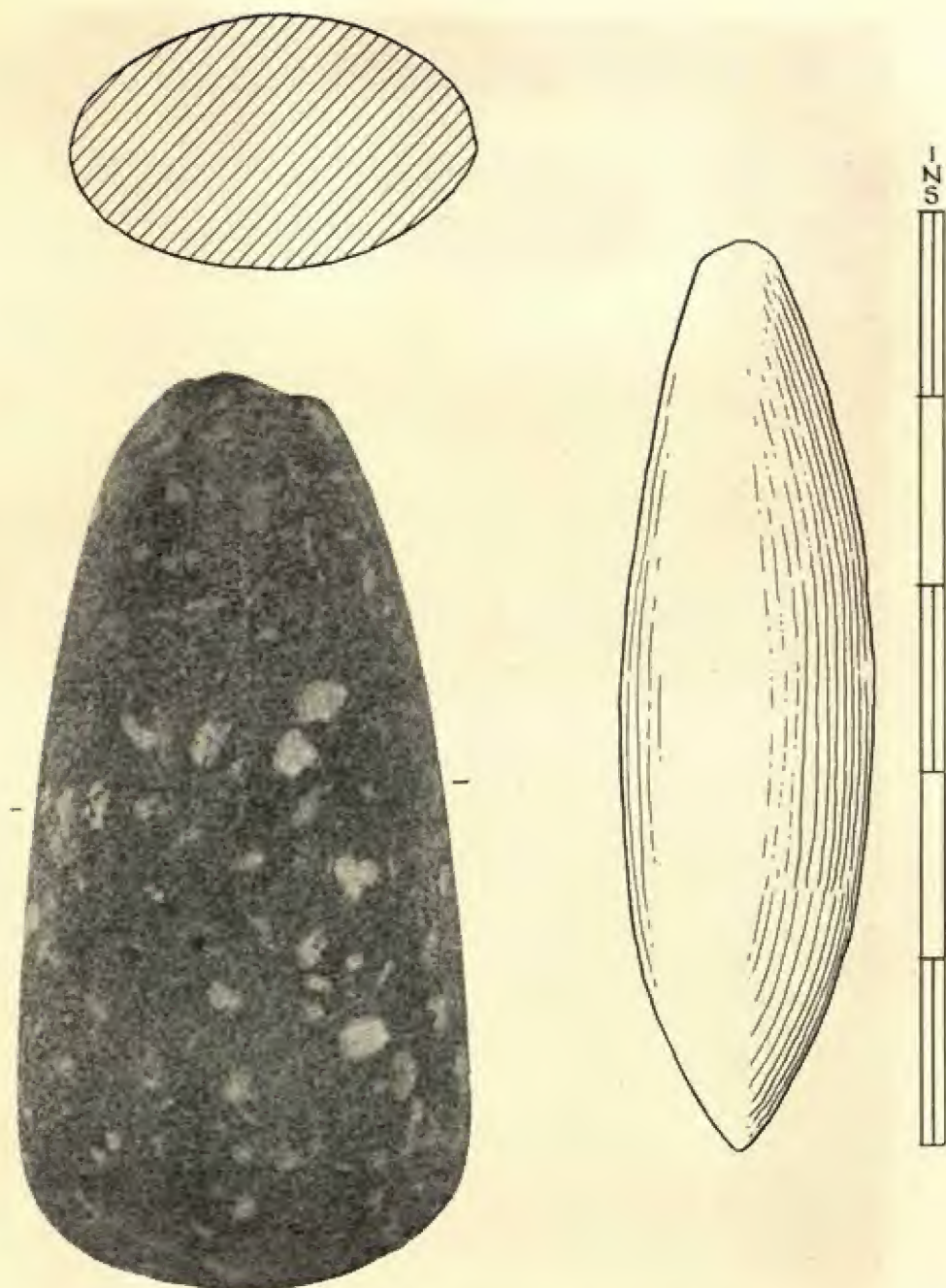
Ph. Alexander Keller

PLATE IV



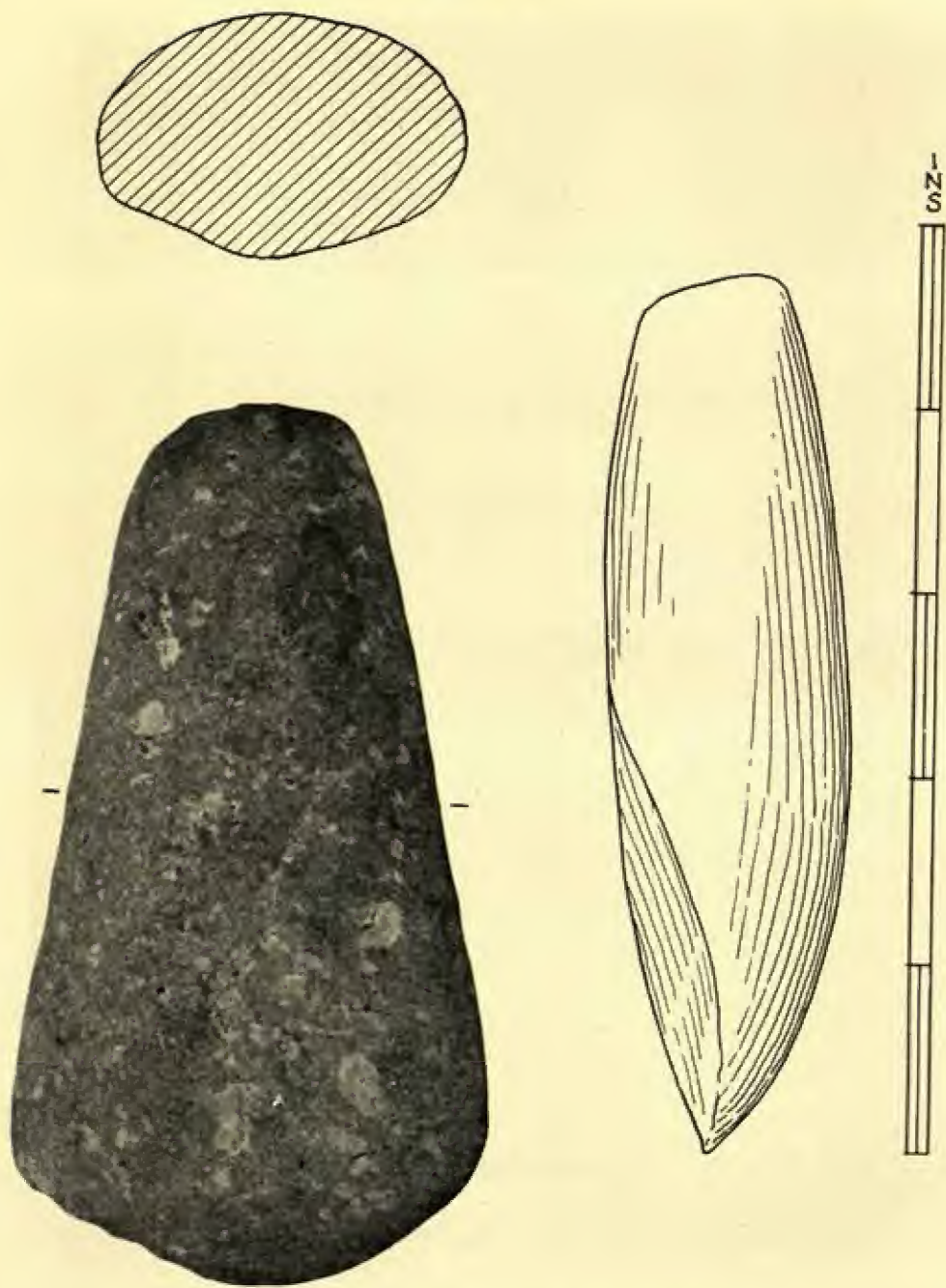
GENERAL VIEW OF ROCK-SHELTER AT CAP BLANC (See p. 200) SHOWING ROCK-SCULPTURES AND SKELETON (UNDER GLASS CASE)
Ph. Alexander Keller

PLATE V



AXE OF PRESELY STONE FOUND IN CARCLINTY BOG, CO. ANTRIM, IRELAND (*See* p. 220)

PLATE VI



AXE OF PRESELY STONE FROM CO. ANTRIM, IRELAND (*See* p. 220)

PLATE VII



A. POTSDERD FROM THE PRIMARY SILTING OF THE STONEHENGE DITCH.
SALISBURY MUSEUM. FULL SIZE (*See p. 221*)



B. SCARE-CROW IN FIELD NEAR KISH, IRAQ (*See p. 223*)
Ph. Henry Field

PLATE VIII

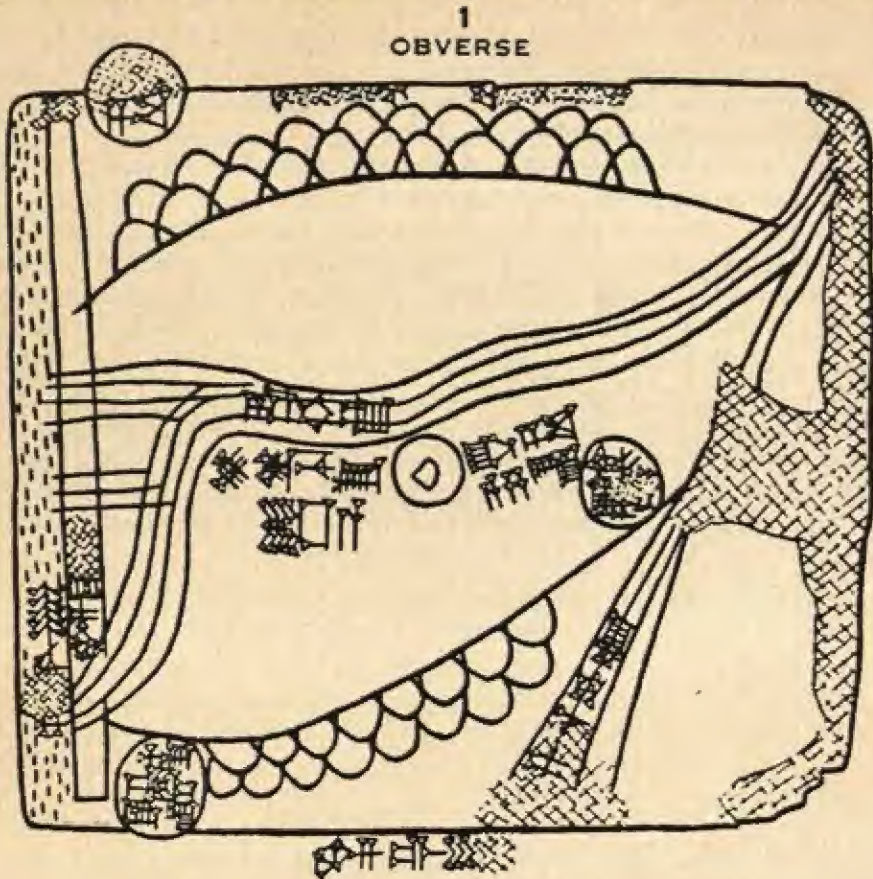


AKKADIAN MAP, c. 2500 B.C., FOUND AT NUZI (See p. 223)

By courtesy of the Harvard Semitic Museum

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and most inaccurately drawn, as scholars have universally recognized :⁴ the Tigris is not indicated at all ; Babylon and Assyria are not represented in correct relation to each other ; and the other cities and districts



AKKADIAN MAP FOUND AT NUZI (cf. plate opposite)

are not in anything approaching a correct geographical order. Likewise the map of Nippur proves nothing. As King has well said,⁵ the relation of the details indicated on the map to the remains uncovered in the

⁴ See, e.g., S. Smith, *Early History of Assyria*, p. 85.

⁵ *A History of Sumer and Akkad*, p. 88.

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course of the excavations at Nippur is largely conjectural, and the top of the map could just as well be northeast as northwest. In that case the map is correctly placed by Fisher⁶ and others, and not incorrectly, as Unger maintains. This would make the canal drawn across the map run northeast and southwest, and that is exactly the direction in which it did run, as the excavations showed.⁷ With the Nuzi map so explicit on the subject, the Babylonian orientation of maps must have been with the northeast, Babylonian 'east', at the top.

I am sorry that Unger took no account of the map from Nuzi in his article because its interpretation is somewhat of an enigma. For my own part I believe that it was drawn to locate an estate near Nuzi, somewhere between the Zagros Mountains and the chain of hills running north and south through Kirkuk.⁸ As noted from the accompanying photograph (PLATE VIII) of the map, it represents a region bounded in the east and west by mountain ranges and traversed by two rivers or canals. There are three cities marked by circles, with their names written within the circles, and in the centre of the map is another circle flanked on either side by an inscription that may be read 10 BUR 10 BUR minus 6 GAN MA (the numeral 4 written as subscript) -A ša-at A-za-la, i.e., '180 + 180 - 6 (354) gan or iku of cultivated land belonging to Azala'.

⁶ *Excavations at Nippur*, 1, pl. 1.

⁷ See the plan of Nippur by Fisher, *op. cit.*, p. 10.

⁸ For a full discussion see the works cited at the beginning of the present article.

Current Comments

The section of ANTIQUITY hitherto called 'Recent Events' had a tendency to become a rather dry collection of snippets from press-cuttings, and it is proposed therefore to vary it, as an experiment. Readers are invited to comment upon the change, and to contribute items themselves. These latter should be sent in the form of a separate paragraph on a separate sheet of paper, so that it may be filed until needed for use.



It is proposed to publish here not only news items in the strict sense, but also observations and comments. In this way we hope to bring the section into closer touch with discovery and research. Certain of the items must inevitably seem trite or commonplace. On the other hand it is hoped that some of the writer's observations may be found useful by students, for he has naturally selected for record those which he knows to be connected with current problems.



These notes are being written in Copenhagen, and it is natural to begin with the Danish National Museum, the home of modern prehistoric archaeology. How many people know that a complete wooden plough is exhibited there, found in peat at Traesager? It is about twelve feet long, and is dated 400-0 B.C. Four wooden yokes are exhibited in the same case.



In a recent paper read before the Society of Antiquaries of London it was suggested that the jet bead from the Notgrove (Gloucestershire) long barrow was connected with the double-axe amber beads of Scandinavia. There are very many of these in the Copenhagen Museum, and some of them have departed quite far from the original type; but it is to be observed that all of them are perforated through the narrower axis of the bead, not, as in British specimens, through the longer axis. But the suggested analogy may well be correct nevertheless. Some of the Danish double-axe beads also were found in megaliths, *e.g.*, those in room 6, case 7, from a Jaettestue, that is, a Giant's Grave, at Graese, Nord Sjaeland.

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The Danish prehistoric period was rich in gold finds, and there are two gold lunulae, one plain, the other ornamented with parallel grooves. The latter specimen has been broken in antiquity and mended by pierced holes through which no doubt some fibre or string was passed. Like the German specimen from Schulenburg, near Hanover, the width of the gold ribbon is narrower than most of the specimens from Ireland, the home of lunulae.



The presence of rows of highly conventionalized birds on bronze buckets and clay pots, a feature of the Hallstatt period, has been recorded in Brittany and Cornwall (Chun Castle). A similar bird-procession occurs on a Late Bronze Age ('800-400 B.C.'), handled pot in room 12, case 3. Below the birds is a band of triple-arch ornament. No locality is given.



One of the most interesting exhibits is a series of potsherds with impressions of grain. These are in room 6, which is devoted to objects found in Jaettestuer, and dated 2500-1800 B.C. They are primarily important as evidence of agriculture at the date which is fixed by the pottery; but there is a technological aspect also. For these impressions got there doubtless through the admixture of straw with the clay to bind it—a practice long recognized as characteristic of Anglo-Saxon pottery. It is particularly interesting to find it in use as early as the megalithic period in the original homeland of the Anglo-Saxons.



In the Copenhagen Museum such potsherds are shown with a small white circle indicating the grain-mark. One wonders whether similar marks have been found on Anglo-Saxon—or any other—urns in Britain? (A few such have been already recorded; see for instance *ANTIQUITY*, 1927, I, 263).



There is a fine model, on a geologically coloured relief map, of the Danevirke, a linear earthwork running across the Cimbric peninsula from Hedeby on the Baltic to the river Trene, flowing into the North Sea. We hope to publish a full account of this at a later date.

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In the central courtyard are erected some passage-graves and other megalithic burial-chambers, and some boulders with sculptured designs of various periods.



The arrangement of the Museum is of course chronological ; the rooms are not too well lit, especially room 2, containing finds from the famous kitchen-middens, and it is not easy to see the specimens in the wall-cases. The hours of opening are short and most inconvenient (12-3) and seem specially designed to impose a mid-day fast upon the student. Partly no doubt in consequence of this the galleries are so crowded with sightseers during the short period available that study and note-taking is difficult. Many of the rooms are quite small (36 by 27 feet), and there were often more than twenty people in them at a time. A student on a short visit during the period of a public holiday—the only period possible for many—needs the whole three hours every day of his visit, in order to see and study the wealth of material ; and it is closed altogether on Sundays.



Nevertheless it would be most unfair to end on a note of criticism. The Museum in such other essentials as arrangement and labelling is admirably up-to-date, and compares favourably with most others. As for overcrowding, that is, after all, a tribute both to the Museum authorities and to the people of Denmark, who obviously appreciate their wonderful heritage of prehistory. Nor are the cases overcrowded with a bewildering assortment of objects. It is also a pleasure to be able to make notes openly, without feeling like a criminal being watched by a detective.



Copenhagen is now within a day's flight of London, and the air-passage is interesting. One is struck by the close resemblance of Holland to our own Fen Region ; there are the same narrow dyked grass meadows and the same black peaty moors splashed with white sand or silt. The resemblance may be in part superficial, but it is also in part well grounded. The meanders of extinct watercourses are plainly visible, especially near the aerodrome outside Amsterdam. On the other hand there are no traces of ' Celtic fields ' to be seen anywhere along the course of the route. That is strange, because it is known that such occur in the province of Drenthe, Holland (see *ANTIQUITY*, 1928, II, 85-7).

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One is all the more impressed by the extreme richness of England in field-archaeology, and the urgent need of recording all that there is before it is obliterated by the 'advance of progress'. Paramount is the need of a complete air-survey of the Fen region.



Another reflection suggested by such a flight is the geographical contrast between Britain as a whole and the Low Countries. Between Rotterdam and Copenhagen there are practically only two types of country—fen and moor, both mostly reclaimed. It would be impossible to cover a similar distance over England without passing over many different types. The landscape of our island is far more diversified than any region of the same size elsewhere in Europe; and that, with the climate, explains most of the fundamental traits of our national character. (The remainder have a social origin not unconnected also with geography).



An important discovery has been made at Sakkara, ten miles south of Cairo. Sakkara is best known for its Step Pyramid (see ANTIQUITY, 1928, II, 461-3). It was close to Memphis, the ancient capital of Egypt, whose necropolis was situated here. Mr W. B. Emery, an English archaeologist and a former pupil of Professor Peet of Liverpool University, was continuing the excavation of a First Dynasty tomb which had been interrupted in 1931 by the untimely death of Mr Cecil Firth. The work has now been resumed by the Egyptian Department of Antiquities.



It appears that a series of forty-two store-chambers were concealed in the walls of the tomb by a casing of brick that appeared solid. Consequently the chambers had not been suspected during the earlier work carried out there. About half of them have been cleared and the contents removed to the Cairo Museum, where they are now exhibited. Amongst the objects are curved wooden sickles with flint teeth, a leathern quiver and arrows with ivory (?) and flint points, a gaming-box, a plaque with a hunting scene (dog chasing antelope), the usual array of pots, some with inscribed sealings, and 'discs of stone, bronze or ivory'. Flint knives more than a foot long were also found, and 'an inscribed ebony tablet bearing the name of Pharaoh Zer'.

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Apart from the actual finds, which of course are mainly valuable because of their age and because they can be accurately dated, the tomb is remarkable because 'most of the kings and noblemen of the First Dynasty were buried in Lower Egypt' (Prof. Glanville, as reported in the *News-Chronicle*, 7 April). The objects form the largest collection of relics ever found in a tomb of this early date, several centuries before the Pyramids of Giza were built.



The discovery also has an amusing side. The tomb belongs to the First Dynasty, which is placed in the second half of the fourth millennium B.C. by the vast majority of Egyptologists,* who have never accepted the earlier chronology of Sir Flinders Petrie. This earlier system, however, still seems to fascinate Fleet Street, which is generally behind the times in such matters. Accordingly we are treated to a bewildering confusion of dates and names.



The first announcement appeared on 6 April, in the *Birmingham Post* and *Liverpool Echo*. The first, whose archaeological news is usually accurate and often exclusive and authoritative, dated the tomb 'back to 5000 to 6000 years', whether B.C. or 'ago' not stated, but presumably B.C., since the First Dynasty, in Petrie's system, is dated 4940-4777 B.C.; and this is the date assigned to the tomb by the *Liverpool Echo*.



The next day the *Daily Telegraph* announced it, in a caption, as a 'tomb of 5000 B.C.' reverting to 5500 B.C. in the text, but adding further confusion by the statement that this was '2000 years before Tutankhamen', who came to the throne in 1358 B.C.! The *News-Chronicle* of the same day preferred the orthodox shorter chronology, dating the First Dynasty to 'about 3200 B.C.'.



During the night the *Telegraph's* Cairo correspondent received enlightenment, and announced without a blush the 'wonders of a

* Breasted gives the period covered by the first two dynasties as 3400-2980 B.C. *History of Ancient Egypt*, 1925, p. 597.

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tomb of 3500 B.C.', coming down to 3000 B.C. in the text. But the *News-Chronicle* meanwhile had raised the price to 3400 !



Finally equilibrium was reached at 'approximately 3000 B.C.', in *The Times*, whose first announcement, appearing the following day (9 April), is the last to hand at the time of writing.



The two chief victims of this unsought publicity are the dead man and the discoverer, to whom one offers both congratulations and sympathy. The former appears as a 'nobleman of the time of King Zet', 'Grand Vizier to [sic] King Den or Udyumu'; while the latter is variously described as 'tall, bespectacled, Liverpool-born', a 'young Briton', a 'thirty-year-old Englishman', a '33-year-old Liverpool man', 'the Liverpool archaeologist' and 'a young English Egyptologist'.



The attitude of the specialist towards such errors and absurdities is usually one of indifference mingled with contempt. We have always believed that that attitude is a mistaken one. It is, in any case, not the attitude of the specialist when he wishes to enlist the services of the press to further his own ends, to raise money for a dig or stop a piece of vandalism, for instance. On such occasions he usually receives generous and often enthusiastic support; and it is up to him to make some return. After all the press is a useful link between him and the taxpayer who (in most cases) pays him his salary.



In this case there is, unfortunately, a substratum of truth in the accusation of the *News-Chronicle* (leaderette of 7 April) that 'the learned have been wrangling for years' over the 'misty chronology and history of early Egypt'; though 'wrangling' is perhaps too harsh a word to use of those whose only aim is the discovery of the truth. It is therefore desirable that 'the learned' should throw the onus upon Fleet Street.

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Would it not be possible for some recognized authority, such as the British Museum or one of the learned societies concerned, to issue a short pamphlet setting out in tabular form the orthodox chronology of Egypt, with the names of the kings? It is impossible to explain its intricacies in a telephone interview, but on such occasions it would be easy to refer the interviewer to such a pamphlet for details.



An occupation site amongst the sand dunes of the West Cumberland coast was discovered at the end of the summer of 1935, typologically similar to others at Glenluce in Wigtownshire, on the Ayrshire coast, and elsewhere.

Unfortunately the weather broke before more than a preliminary examination could be made of the site, and the constant shifting of blown sand makes work there always difficult, but it is hoped that during the present summer it may be possible to carry out full examination of an interesting place full of possibilities. Amongst the finds already made are flint artifacts (the first of this class recorded for the district), and chips, potsherds of different types from Roman to medieval, extensive remains of iron-smelting, traces of bronze working, innumerable pot-boilers, and a leaden spindle-whorl. A preliminary report of the site (the first sand-hill settlement to be recorded for Cumberland) will appear in the 1936 volume of *Transactions* of The Cumberland and Westmorland Archaeological Society.



The British School at Rome is hoping to continue the excavation this summer of a Roman building at Cnossus which was partly investigated last year by Sir Arthur Evans and the British School at Athens (see *Journ. Hellenic Studies* 1935, pt. II), and at the same time to survey and record such remains of Roman Cnossus as are still above ground. The activities of the School in Italy have been curtailed owing to the political situation (though the School and Library are still kept open for any who wish to make use of them) and the Faculty of Archaeology has welcomed the opportunity of carrying out excavations in Crete. An appeal for funds will shortly be made.

Reviews

A HISTORY OF THE ANGLO-SAXONS. By R. H. HODGKIN. Oxford: Clarendon Press, 1935. 2 vols., pp. xxvii, 387; xii, 366, 85 plates (4 in colour), 34 maps, numerous text-figures. 30s.

In recent years much important work has been done on the history of Anglo-Saxon England. But most of the work has been published in periodicals and, except for the specialist, it was difficult to estimate exactly what progress had been made. A synthesis was required and this synthesis is provided by Mr Hodgkin. On the whole the outlook of the book is distinctly conservative, but brilliant conjecture can hardly find a place in a book written essentially for students. The more important theories on any subject are usually given quite impartially and the author never emphasizes his own views unduly. The two volumes carry the history of the period down to the death of Alfred and, throughout, interest is 'focussed on the great men and the big subjects'. Such treatment is, perhaps, inevitable but it leads to definite gaps in the story. For example practically nothing is said of the history of Northumbria after the death of Egfrith. Little is known about it and that little is not important. Nevertheless concentration on the high-lights tends to give a false idea of the picture as a whole. Throughout the work Mr Hodgkin claims to have acted on the 'principle that an approximation to the truth is better than a complete blank'. This may be sound enough but it leads later to the dictum that 'it is better to make mistakes than to leave complete blanks'—a much more questionable statement.

The first volume opens with a discussion of the continental homes of the Anglo-Saxon invaders and with a picture of the last age of Roman Britain. Mr Hodgkin apparently agrees with most historians in placing the end of Roman rule during the early years of the fifth century. But the documentary evidence seems to point to a somewhat later date. The *Notitia*, the *Life of Germanus* and the writings of Patrick show a Britain which is still Roman until well into the second quarter of the century. Doubtful though the evidence of the *Notitia* may be, it is supported by the other documents. On the other side we have only the evidence of a Gallic chronicler, himself surrounded by his own fog of war and ready to believe the worst of the rest of the Empire, and the numismatic evidence. But, as Mr Hodgkin points out, Foord has shown that the evidence of the coins is inconclusive.¹ The Conquest is dealt with in detail with a full appreciation of the recent light thrown on the subject by archaeological research. Perhaps more use might have been made of the Celtic sources. The monographs of Canon Dobie on the Cornish saints and the recent work of the Rev. A. W. Wade Evans² contain some interesting, if tantalizing, references to this period. Mr Hodgkin seems to repose more confidence in the account of the foundation of Wessex, as given in the *Chronicle*, than do most historians. He points out, quite rightly, that the archaeological

¹ E. Foord, *The Last Age of Roman Britain*, Harrap, 1925, pp. 27 ff.

² See especially his book on *Welsh Christian Origins*, Oxford: Alden Press, 1934; but this may not have been available in time for Mr Hodgkin.

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evidence is merely negative. It gives no support to the story of the chronicler but, alone, it cannot disprove it. But the comparative lack of early burial-sites in Wiltshire and Hampshire is also supported by the rarity of place-names in *-ing*.³ The two points together seem to be decisive. The settlement of the North is dealt with much more briefly than that of the South and Midlands. This is, in part, inevitable owing to lack of information. But rather more is available than would appear from this work as is shown by a recent paper on the subject by Mr J. N. L. Myres.⁴ Mr Hodgkin has described the invasions skilfully and with caution. It is natural, however, that students of this period will disagree with some of his conclusions. The period bristles with so many problems that each scholar will have his own particular theories. As a primary source we have only the rhetoric of Gildas and, although it is interesting to note that his strictures on the Britons are supported by the somewhat later author of the *Life of St. Samson*,⁵ as a historian he is only better than nothing. The story on the Conquest concludes with an interesting chapter on Heathen Society. Little material is, of course, available for such a chapter but what there is has been carefully collected by the author. Rather more evidence for heathen religion can be gathered from place-name material than Mr Hodgkin has realized; note the recent article by Professor Dickins on 'English Names and Old English Heathenism' (*Essays and Studies*, ix, 148 ff). Similarly in connexion with heathen sacrifices see the article on 'Place-Names formed from Animal-Head Names' (*EPNS*, xi, appendix 1, p. 403). In dealing with the Conversion Mr Hodgkin, like most historians, seems to ascribe an undue importance to the mission from Rome. The mission of Augustine was essentially a failure and, after an initial success, the missions to Essex and to Northumbria also failed. Augustine converted Kent and a later mission from Rome converted Wessex, but Northumbria and Mercia were both converted from the North. The facts are given fairly enough by the author, but the importance of the Roman mission has been so often exaggerated that it seems necessary to emphasize its comparative failure. The fact that Christianity came to England mainly from the North is of the utmost importance in the history of English culture. The first volume closes fittingly with a description of the Golden Age of Northumbria, a description which may now be supplemented by the Bede Centenary volume.

The second volume, dealing with the period from the rise of Offa to the death of Alfred, is, perhaps naturally, less interesting. The Golden Age of Mercia under Offa is, owing to lack of materials, necessarily obscure. But it is perhaps dismissed more cursorily than it might have been. For example, the creation of the archbishopric of Lichfield is mentioned only in passing, but no general account of Offa's ecclesiastical policy is given. The history of Northumbria is almost completely omitted though, culturally, it is still important until the middle of the ninth century. Throughout the two volumes the evidence of the surviving Old English literature is well and wisely utilized. Here it is employed to show the change in the ideals of the Anglo-Saxons brought about by the Conversion. It is, however, hardly correct to say that 'the songs about the heroes of the heathen age, those for instance enumerated in *Widsith*, were to cease' because of the Conversion. Though none of the songs celebrating these heroes have

³ This point has also been noted by Mr J. N. L. Myres, 'Britain in the Dark Ages', *ANTIQUITY*, December 1935, p. 464.

⁴ J. N. L. Myres, 'The Teutonic Settlement of Northern England', *History*, December 1935, pp. 250 ff.

⁵ See T. Taylor, *Life of St. Samson of Dol*, London, S.P.C.K., 1925.

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been preserved, it does not necessarily mean that they were forgotten. On the contrary there is evidence that many of these pagan heroes were remembered until well on into the Middle Ages.⁶ In describing the rise of Wessex, too much emphasis is probably placed on the importance of Egberht. Under Aethelwulf Wessex lost the *imperium* and declined rapidly in importance. The later greatness of Wessex is due rather to Alfred and his successors, to the fact that the Viking invasions struck down all rivals, so that Alfred's successors had to deal, not with strong kingdoms, but with the heterogeneous states of the Danelaw. There seems to be little reason—apart from the Viking invasions—why the Wessex of Egberht should not have gone the way of the Wessex of Ine.

The greater part of the second volume deals with the Vikings. The story of the invasions is told clearly and intelligibly, no mean feat when we remember the complexity of some of the operations. On Ragnar Lothbrok and his sons we may note the recent article by Dr A. H. Smith.⁷ The ignominious end of Mercia is emphasized but it is hardly necessary to seek so far for a reason. The greatness of a kingdom depended simply on its king. We remember the similar collapse of Wessex under Aethelred II. That this collapse was due entirely to the incapacity of the king is shown by the later heroic campaign under Edmund. The alliance of West Mercia and Wessex under Alfred is rightly emphasized by Mr Hodgkin as one of the early steps in the unification of England. The closeness of that alliance is shown by the later Middle English dialects. The descendants of the West Saxon and the West Mercian dialects share many characteristics in common, due partly to this early alliance. The reign of Alfred is treated in considerable detail, partly because of the comparatively numerous authorities available, partly because of the undoubted importance of the king and his reign, and the volume ends with the death of Alfred.

In conclusion we may note three unimportant points. The *Loidis* of Bede is given as modern *Ledstone* (I, 150). Philologically *Leeds* is a more satisfactory identification, but the name probably referred to a region rather than to any specific place. On I, 379 the reference to Professor Stenton's article should read *Essays . . . Lane Poole*, 136-50, and not *Essays . . . Tout*, 136-50. On p. 711, *Tribal Hidage* is miswritten for *Burghal Hidage*.

Mr Hodgkin is to be congratulated on the production of an eminently sane and readable book on the darkest period of English history. Even those who disagree with his conclusions must admit that the facts are given with strict impartiality. He has written not only a political history but a social history too. Remarkably little that has been written, even remotely, on the subject has escaped him. Most of the works mentioned above were probably published too late to be available. The main grievance of the scholar will be in the placing of the notes together at the end of each volume instead of at the foot of the page.⁸ Any careful reading of the work is rendered intolerably difficult and it is to be doubted whether the general reader draws corresponding relief from this objectionable habit. Apart from this the two volumes have been admirably produced. The numerous illustrations and maps are excellent. Mr Hodgkin has

⁶ R. W. Chambers, 'The Lost Literature of Medieval England', *Trans. of the Bib. Soc.*, March 1925, p. 293.

⁷ A. H. Smith, 'The Sons of Ragnar Lothbrok', *Saga Book of the Viking Society*, XI, part 2, p. 173.

⁸ We wish to call attention to this criticism, which is continually being made in the reviews we publish.—EDITOR.

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recognized the value of illustrations for a period in which so much of the material is archaeological. The continuation of this history will be eagerly awaited by all students of the Anglo-Saxon period.

R. M. WILSON.

LES MONUMENTS MÉGALITHIQUES DE PALESTINE. *Par MOSHÉ STÉKÉLIS.*

Archives de l'Institut de Paléontologie humaine, Mémoire 15. *Paris: Masson, 1935. 50 francs.*

M. Moshé Stékélis prefaces his report of his own excavations in the necropolis of El-Adeimeh, five miles from the north end of the Dead Sea, with an invaluable summary of previous work on megalithic monuments in Palestine, and also with a detailed synopsis of the prehistory and protohistory of the country.

A distribution-map indicates the position of the principal groups of caves and megaliths, the latter being often placed in the neighbourhood of springs.

Most of the 'dolmens' examined by M. Stékélis are simple cists often contained in a cairn bounded by a circle of stones. Sometimes the cairns are grouped so closely together that they tend to amalgamate, or to be connected by lines of walling.

Brief accounts are given of the dimensions and contents of 168 of these cists, together with plans of some 35, and of 7 of the tumuli. More plans of these would have been welcome.

Most of the cists were simple rectangles containing badly preserved bones of crouched skeletons; with five exceptions all are oriented east and west. On the broken cover of one are incised meandering lines, which, to judge from the two fragments illustrated, do not seem to have formed part of any recognizable pattern which might be compared with more western megalithic carvings.

A number of hearths were found, circular, oval, rectangular and horseshoe shaped, and sometimes covered by a tumulus; in one case five were found under one mound without any trace of burial or cist. On the hearths were quantities of ashes and burnt soil, but no pottery. Around the five already mentioned as occurring under one tumulus however, were great quantities of fragments derived from hundreds of vessels (*tessons de terre cuite*).

One interesting feature is a very curious 'circle of stones' 30 metres in diameter, consisting of a great number of thickly clustered uprights .35 m. in height arranged in an uneven ring. The stones stand in irregular rows five to six deep in places; elsewhere they are only two deep; apparently all are embedded in a bank. M. Stékélis records the discovery within the circle, as the result of excavation, of fragments of pottery similar to those recovered from the tumuli, but does not say whether he considers that the purpose served by the circle was residential or ritual. One detail of the plan rather suggests the latter, as it indicates what looks like part of an outer circle of single stones, two of which are doubled at the eastern side as if for a ceremonial entrance, as in British examples.

M. Stékélis rightly rejects Mr Turville-Petre's assignation to the Roman period of the 24 'dolmens' in Galilee near Kherazieh examined by him for the British School of Archaeology in Jerusalem in 1930, and dates all the Palestine groups to the end of the Stone Age, *i.e.*, the dawn of the æneolithic, although one of his reasons for so doing, the complete absence of metal, is not convincing. Ultimately no doubt the question of date will be settled more precisely by the pottery recovered from the burial mounds and chambers.

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M. Stékélis concludes this most valuable and painstaking record with a bibliography of 147 publications on the megaliths of Palestine. We shall be fortunate if it is increased in the future by more memoirs of the same quality as that under review. W. J. HEMP.

Teleilat-Ghassoul, a few miles north from the Dead Sea, has provided the type station for the 'éneolithique' Ghassoulian culture of the Jordan valley and Transjordan, distinguished by R. Neuville from the contemporary Tahounian of eastern Palestine. The Ghassoulian is as yet little understood, but its position will soon be clarified by the publication of significant evidence from Jericho. Meanwhile M. Stékélis has excavated and obtained a quantity of pottery from the necropolis of El-Adeimeh, a cemetery of cist-graves and cists-in-tumuli lying close to the town of Teleilat-Ghassoul. He divides the pottery into two classes, a funerary hand-made and a domestic wheel-turned group, the former being found exclusively in the cist-graves, the latter exclusively round the hearths which lay under several of the tumuli. No clear classification of the two classes is provided, and some types, notably the globular pots attached to hollow feet called *calices à pieds*, appear to occur in both (cf. pp. 70 and 78). The distinction thus unfortunately ill-defined is an important one, for whereas the domestic pottery corresponds exactly with that from the Teleilat-Ghassoul, the funerary types are naturally less closely paralleled there.

One of the most distinctive of the funerary wares is the hollow-based stand or *vase en forme de diabololo* which presumably should be regarded as a detached version of the high hollow foot of the *calice à pied*; it is of special interest for the close resemblance it bears to the vase supports of the west European Chassey culture.

M. Stékélis' excavations are most valuable for the light which they throw on the burial practices and pottery of the Ghassoulians, but how can his claim be substantiated that they prove these people to have been among those responsible for the construction of Palestinian megaliths? The only true 'dolmen' in the neighbourhood of the necropolis, like all megaliths previously excavated in Palestine, yielded nothing of value when opened by Stékélis. The cists of the cemetery were small, built with modest-sized stones, and sunk below ground level; there is nothing in this paper to prove their close affinity with the megaliths beyond the unqualified statement (p. 37) that '*les cistes ne diffèrent des dolmens que par leurs dimensions réduites*'. Nor is the fact that the Ghassoulian culture has a very different distribution from the megaliths in any way explained.

Unless substantial finds are made in some of the megaliths themselves it seems that M. Stékélis' attempt to attribute them even partially to the Ghassoulians must remain unsupported. JACQUETTA HAWKES.

ARYBALLOI AND FIGURINES FROM RHITSONA IN BOEOTIA: an account of the early archaic pottery and of the figurines, archaic and classical, with supplementary lists of the finds of glass, beads and metal, from excavations made by R. M. Burrows and P. N. Ure in 1907, 1908, 1909 and by P. N. and A. D. Ure in 1921 and 1922. By P. N. URE. (Reading University Studies). Cambridge University Press, 1934. pp. 107, with 9 figures including folding plan, and 21 plates. 21s.

Visitors to the Thebes museum will remember the serried ranks of the cemetery-finds from Rhitsona, kept strictly according to graves and stacked, on account of the

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demands of space, like tea-services in a china-shop; an impressive reminder of the sometimes neglected fact that there was quantity-production in Greece. This kind of storage is not very regrettable on the score of artistic merit, and on scientific grounds the care with which graves have been kept separate deserves high praise. The same spirit has animated their publication, which this book completes. Professor Ure has admirably avoided the temptation to go beyond his purpose by drawing other than scientific conclusions of a purely archaeological kind from his material, which could, in the proper place, be made the subject of economic and sociological speculations. For the present work, thanks are due both to him and to the University of Reading, which met the costs of publication: we note the many excellent plates, and the moderate price.

This pottery came from graves dating from the Geometric period (8th century) to the early part of the 6th century: the figurines range from their first appearance at Rhitsona, about 600 B.C., to the 3rd century B.C. Sections on glass, beads and metal objects are added. Moreover, an appendix gives a list of other sites which produced parallels to the Corinthian aryballoi and bombylioi from Rhitsona burials, and the publication of the whole past excavation of the site is concluded by a full list of the contents of all the graves not hitherto published; so this book is indispensable for a full study of the site.

The pottery chronology is based on the evidence of the site itself, compared with the finds from Sicilian and South Italian cemeteries preserved in the local museums, which Professor Ure has visited. We have thus, for the Corinthian pottery, a judgment independent of Mr Payne's *Necrocorinthia*: the conclusions are very similar, although Professor Ure has reason to modify Mr Payne's scheme (Professor Ure consistently puts back the dates a few years, and regards as middle Corinthian much that Mr Payne classes as early) so far as Rhitsona is concerned. But, as he says, this apparent difference reflects a difference of object. Mr Payne is establishing an artistic canon, Professor Ure recording practically only aryballoi, as exported from Corinth to Boeotia and found in graves there: it is not surprising if some reservations have to be made about such products and if artistically they lag behind the most advanced contemporary output. It is precisely to a question of this kind that a work like this helps to point an answer.

Of the graves which contained aryballoi, the 'Corinthian' were more numerous and richer than the pre-Corinthian. One grave had nearly 300 vases, others over 30; half-a-dozen was the average content of the pre-Corinthian graves. Burial customs are traced, and shown to have been very local, and to have varied from time to time.

Nomenclature is usefully discussed, and some deviations from the practice of others are suggested in partitioning the names (aryballos, lekythos, bombylios and alabastron, with sub-divisions) among the shapes.

From the Geometric period onwards, pottery was imported as well as made locally; significantly, the imports are referred to that part of the Peloponnese which makes them the precursors of the Protocorinthian and Corinthian pottery which characterizes the later periods. An interesting point is the burial in a child's grave of an early Protocorinthian vase which was evidently an heirloom, perhaps 150 years old when it was buried: there are parallels, and the subject is one which demands consideration in its general setting elsewhere.

As part of a specific excavation report, as a contribution to the study of particular classes of pottery, and as an accurate statement of facts which contribute to more general issues, this book deserves unstinted praise.

W. L. CUTTLE.

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BRONZEZEITLICHE UND FRÜHEISENZEITLICHE CHRONOLOGIE. Teil v, MITTELEUROPAISCHE HOCHBRONZEZEIT. By NILS ÅBERG. pp. 162, Stockholm, 1935. 25 kr.

In part II of his Chronology of the Central European Bronze Age Dr Åberg began by fixing the beginning of the Hallstatt period proper at 650 B.C. on the strength of a previous study of the Italian evidence in part I. In part III he fixed the beginning of the Continental Bronze Age at about 1600 B.C. on the strength of synchronisms with Troy and Mycenae elaborated in part IV. The last part is devoted to the typological division of the intervening thousand years. It has only an indirect bearing on absolute chronology, so that it can on the whole be judged without reference to criticisms of the previous parts that have appeared in earlier numbers of *ANTIQUITY*.^{*} The immense mass of material falling within the scope of this book has inevitably been rather summarily treated; only a small fraction of the types, mostly old friends, has been illustrated; many monographs on the typology of regions or special forms, even of such magnitude as Blinkenberg's book on fibulae and Kraft's studies of southwest Germany have been entirely ignored; and on the typology of some forms, such as anklets, the author is manifestly quite at sea.

Nevertheless this volume is as stimulating and important as its forerunners. It has always been an outstanding merit of Åberg's approach that he has fully appreciated the rôle of Hungary and her early Aegean connexions. And so here he will not be blinded by the Italian mirage that dazzled Montelius and Reinecke, nor yet by the Germanic mirage, pursued by Kossinna and his disciples. And so he presents the urns of 'Villanovan profile' that appear in Hungary already in period II as the prototypes, not copies, of the North Italian ossuaries. And the situlae, cups and cauldrons of period IV are not, as we have always been taught, 'altitalische Geschirr', but products of the region where they are found most abundantly, of a native Hungarian bronze industry that inspired the Villanovan rather than imitated it. And the same bronze industry played an equally dominating rôle over against the Germanic. Despite Sprockhoff's statistics showing that early flange-hilted swords, bronze cups and antennae swords are more numerous in the Germanic province than anywhere else, Åberg boldly claims a Hungarian origin for all three types. He very rightly notes how the truly Germanic types of sword, axe and gorget scarcely ever overstep the frontiers of the Germanic province; he urges that the hammer technique was never highly developed in the north while it was the Hungarian craftsman's speciality; he might add that restless barbarism during the Bronze Age and, during modern times, early industrialization combined with patriotic pride, have unduly weighted the figures of 'finds' from the North.

The reversal of the mutual rôles usually attributed to Italy and Hungary would be no less welcome. Randall MacIver and other students of Italian prehistory have always been hankering after a Central European source for the basic elements of Villanovan culture, but have been unable to establish their guesses through ignorance of the Cisalpine material. Here is a plausible attempt to provide the proof by one who is personally familiar with both the Italian and the Hungarian collections. But it is an ineradicable defect of the typological method that by itself it cannot establish cultural movements between different regions, but only static synchronisms. On pure typology bronze vessels adorned with birds' heads in Hungary and Italy are just contemporary. Actually

^{*} Parts I-II reviewed *ANTIQUITY*, 1931, v, 125, 385; part III, 1932, vi, 206; part IV, 1934, viii, 363.

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one region must enjoy a slight priority, but it needs extraneous considerations to decide which. Failing direct and independent links between each region and the historical Orient, the distribution in time of the material may be invoked as a criterion.

Åberg divides the thousand years of the Central European Bronze Age into five periods according to Montelius' system, assigning to each about two centuries. But it must be remembered that in Hungary, east of the Danube, there is strictly speaking no Hallstatt culture at all; the Iron Age begins with a 'Scythian invasion' that cannot possibly be put before 600 B.C. Hungary is in fact rather like Ireland, exceptionally rich in 'late' bronzes, but poor in Early Iron Age remains. Irish experience would suggest that a wealth in bronzes is due largely to an exceptional prolongation of the Late Bronze Age. Luckily in this case the Huelva spear-head gave a lower limit for the beginning of that period.

Åberg obtains a similar lower limit about 1200 B.C. from the appearance of 'Central European' swords in Greece and Egypt. As in my own chronology, 1200 is taken as the beginning of period III, but to period II are assigned not only hoards with battle-axes and rapiers, and cemeteries with Pannonian ware, but also the first octagon and flange-hilted swords, the prototypes of Kraft's Rixheim form, some double-edged razors, and even urnfields like Zagyvapálfalva, all of which I classed as Late Bronze Age. And so in period III we have an imposing number of hoards, comprising not only slashing swords and socketed celts, but even the 'Hallstatt bird' and a whole series of fibulae from the violin-bow type to the elaborate Hungarian 'posamentariefibeln' and simple spectacle brooches. Hemispherical cauldrons with T handles, situlae, embossed cups, swords with cupped pommels and certain not very clearly defined socketed axes serve to characterize period IV. Finally in V we have antennae swords, normal spectacle brooches and bronze cups of 'Arnoaldi style' distinguishing a comparatively small number of hoards.

Now a further inherent defect of typology is caused by the uneven evolution of the several types studied. Different types undoubtedly evolved at different rates. But on the strictest application of the method any assemblage of such types should be dated by the latest element in it. Pushing logic to an absurdity any find containing the 'Hallstatt bird' should be dated to the Hallstatt period. On a more moderate interpretation a typological overlap between two periods would be a valid objection to extending such a period over two or more centuries. The Hungarian swords assigned by Åberg to period II (Reinecke c2) are only distinguished by minor details from South German types of period III (for which incidentally no distinctive Hungarian developments are cited). The Hungarian fibulae of period III 'survive, practically unchanged' throughout period IV to appear still in hoards of period V. The cauldrons of IV differ only in profile and decoration from those of Hallstatt proper. Can we admit that, in Hungary, the safety pin, having blossomed into fantastic forms in a century, then survived fossilized for 450 years. Even so, Åberg's scheme would leave a gap at the end of period V, whereas in fact bronzes of that period have been found associated with a Scythian mirror.

The deficiency of bronzes to fill a period V as long as periods III and IV is 'explained' by 'the quick cessation of the practice of burying hoards in the earth' (other authors have seen in the Scythian invasion a reason for such deposition). But it would still be legitimate to ask what sepulchral and domestic pottery will occupy the interval? Åberg makes no attempt to answer this demand. He has already assigned to period II Pannonian ware, the urns of Zagyvapálfalva and even the type of tankard found high up in the *tell*

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at Pécska (in view of the exact parallel from the Shaft Graves of Mycenae I must now accept a high date for the type) and to period III the ' Buckelkeramik ' of Tószeg c (found with Pannonian ware) and the ' Villanovan ' urns from Pécska. The majority of the known cemeteries and over two-thirds of the stratified deposits in the settlements have thus been used up by 1000 B.C. Yet survivals of Bronze Age traditions in the native pottery of ' Scythian ' (and even La Tène) graves prove a continuity of culture for a further four centuries.

The easiest escape from the impasse would still seem to be to lower the dates of all the later periods ; the settlements and cemeteries of period II are rich enough to cover far more than the 150 years Åberg actually allows for them even if some early swords and urnfields be transferred to an annex like Reinecke's C2—a passing episode leading up to phase D that itself is only a prelude to ' Hallstatt A '. But in that case Åberg's very neat argument for the priority of Hungarian bronze-work of period IV over the Italian would go by the board.

Perhaps another solution can be found. Ireland shows that because a bronze industry lasts long it does not therefore begin late and can still exert a potent influence on distant lands. Åberg's case for deriving the Villanovan industry from the Hungarian makes convincing reading. And it gives a satisfactory solution to an outstanding problem of Italian prehistory. But it can only be established by completing the archaeological record from Hungary down to the Scythian invasion. This the hoards cannot do. But there may be settlements and cemeteries which, if systematically explored and published as Banner has published the cemeteries round Szeged, would fill the gap. Åberg himself by his study of the latter material has brought about a complete revision of conclusions which seemed inevitable nine years ago. V. G. CHILDE.

TRANSACTIONS OF THE II INTERNATIONAL CONFERENCE OF THE ASSOCIATION ON THE STUDY OF THE QUATERNARY PERIOD IN EUROPE. Fasc. v. *Scientific, Technical, Geological and Prospecting Editorial Office, Leningrad-Moscow, 1935. pp. 390. 3 dollars.*

PALEOLIT SSSR. (Izvestiya Gos. Akad. Istorii Materialnoy Kultury, 118) OGIZ. Moskva-Leningrad, 1935. pp. 275. 5 R 25k.

GARGARINO. By S. I. ZAMIATNIN. GAIMK, Leningrad, 1935.*

The fifth volume of the Transactions of the Conference held in 1932 contains papers devoted principally to archaeological subjects. It is well printed on good paper and contains numerous line-drawings admirably reproduced. All the papers are in English, French or German and accompanied by exhaustive bibliographies, supplemented by 40 pages of bibliography at the end of the volume. The papers by Mirčink on the geology of Russian palaeolithic sites (English), by Polikarpovich on palaeolithic and mesolithic sites in White Russia (German), by Efimenko on stations in the East European Plain (German), by Bonch-Osmolovoski on the Old Stone Age of the Crimea (French), and by Sosnovski on palaeolithic sites in North Asia give an exhaustive survey of the results of palaeolithic investigations in the territory of the U.S.S.R. down to 1932. They are supplemented in the same volume by reports on excavations at Chokurcha and Il'skaya and,

* A short account of other aspects of archaeology in the U.S.S.R. (also by Professor Gordon Childe) will be found in the Proceedings of the Prehistoric Society for 1935, pp. 151-4 (London agents, H. K. Lewis, 136 Gower St., London, W.C.1).—EDITOR.

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in *Paleolit* SSSR, by others on Malta in Siberia, Derkul and Gargarino. The last named report has been published separately in French with first class plates. In it Zamiatnin adds a very interesting reconstruction of the Laussel bas-reliefs as a single scene of magical significance.

In all the papers one is impressed with the meticulous accuracy with which post-revolutionary excavations have been conducted. Thus the Soviet excavators have been able to define the form of the actual dwellings corresponding to Upper Palaeolithic 'open stations', solving a problem which excavations in France and Central Europe had left open. The charcoal from palaeolithic hearths has also been submitted to botanical examination which throws considerable light on the environment of palaeolithic men at several periods. Russian archaeologists have adopted the French names for palaeolithic culture-periods but use these in a chronological sense and not as designations for distinct cultures. Indeed they adopt throughout an evolutionist attitude in opposition to migrationist and diffusionist theories. It is even suggested that modern man evolved out of *Homo neandertalensis*.

The oldest traces of human occupation in the territory of the U.S.S.R. are found in the lower level of the cave of Kiik Koba in Crimea. Here a typical flake industry is found associated with a temperate fauna (wolf, *Cervus megaceros*, Saiga antelope, wild ass, ox, red deer and hare) and with juniper, willow and thorny scrub—evidently a Riss-Würm assemblage. In the upper occupation-layer of the same cave mammoth, woolly Rhinoceros, cave bear and other 'cold' animals mark the onset of the Würm glaciation. A Neandertal skeleton buried in an artificial excavation was found in this level. The 800 flint implements can all be described in a general way as Mousterian. 'Points' accounted for 44 per cent. of the tools (10 per cent. worked on both faces), side-scrapers for 37 per cent. and fist-axes (very minute) for 1 per cent. The thin bifacial tools, sharply pointed and flattened on one face, are compared to La Micoque types, but comparison with the African Still Bay and 'Sbäikian' forms might be more relevant. Bifacial tools, including now even side-scrapers, recur with a similar fauna in the Chokurcha cave in Crimea and—in dolomite and other inferior materials—at Ilskaya in the Kuban valley. This site is assigned on geological grounds to early Würm times.

A later 'Mousterian' accompanied by a colder fauna (including even the Arctic fox) is represented in the cave of Chaitan Koba, also in Crimea. Out of 500 implements only 14 were worked on both faces while 10 would pass for gravers. Points and side-scrapers predominate, some points having been resharpened by a graver blow. A rather similar 'Mousterian' has been found in Ukraine, near the junction of the river Derkul with the Donetz.

Industries of early and middle Aurignacian aspect were accompanied by remains of brown bear, steppe animals, river fish, poplar, birch, juniper and willow, but very little mammoth and no rhinoceros in the cave of Syuren 1, again in Crimea. The lowest level yielded one Mousteriform point, resharpened by a graver blow, and some side-scrapers as well as backed blades, angle-gravers and nuclei of upper palaeolithic type. In the middle layer keeled scrapers and five beaked gravers recall the Middle Aurignacian flint-work of the West. The topmost layer yielded knife-blades resembling the Gravette type in form and technique.

These older Aurignacian forms are hardly encountered in the open stations of the South Russian plain, though Zamiatnin has secured a few beaked gravers and an isolated blade of Châtelperron form at Gargarino. The most distinctive tool is the shouldered point with long, wide tang, as at Willendorf; such are associated with a few crude

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laurel-leaves, worked on both faces but not all over, at Kostënki 1. At the latter site the mammoth and horse were the principal game with a little reindeer and polar fox; at Gargarino the woolly rhinoceros took the place of the horse. Both these sites are already famous for the female statuettes discovered in them, but the dwellings—the first palaeolithic houses to be discovered—deserve equal celebrity. They were underground huts, like those of modern Arctic peoples. The foundations were hollowed out in the löss (at Gargarino an oval 5.5 m. by 4.5 m.) and the area covered with a roof of skins or turfs over which earth and refuse were piled. The decay and collapse of the roof has left this refuse spread as an 'upper relic bed' above the actual floor upon which only finished articles lay.† Fire-pits and cooking-holes were dug in the floor, and an examination of the ashes showed that bone was used for fuel.

Another open station, Mezin, famous already before the war, may perhaps be slightly later than the above in view of the prominence of reindeer, musk ox and fox and the comparative rarity of rhinoceros. Its celebrity is due to the highly developed industry in bone, horn and ivory and to the geometric art which uses the meander pattern freely. In both respects Mezin resembles Malta in Siberia on the Angara which flows out of Lake Baikal.

In the fauna of Malta reindeer was represented by over 400 specimens, Arctic fox by 50, mammoth by 9 and rhinoceros by 10; glutton, cave lion, bison, horse and wolf also occurred. The flint tools include Mousteriform side-scrapers and discs as well as blade tools—gravers, end-scrapers and hollow-scrapers. Bone and ivory artifacts—pins, needles, chisels, lance-heads—are very abundant. The site has been made justly famous by the discovery of 20 female statuettes and other art objects. At least three of the figures are represented wearing a tailored dress, presumably of fur, like that of contemporary Polar tribes. Three sorts of hair—woolly, wavy and straight—are carefully distinguished. If the representations can be accepted as accurate, they would indicate that ulotrichy, cymotrichy and leiotrichy were simultaneously present in the hunting community living at Malta. And so, since the peoples thus distinguished presumably intermarried, the genes determining a character on which physical anthropologists place great reliance (Huxley and Haddon, *We Europeans*, p. 114) will have had 20,000 years in which to become thoroughly mixed up. Five figures of flying geese (not stylized women, as suggested by E. B. Petri in his paper to the Prehistoric Congress in London, 1932), were also found and a bone plaque decorated with a true spiral in a peculiar pointillé technique.

The age of a site lying so far east is hard to determine either by typology or fauna. Sosnovski holds that it must be later than Kostenki, which he would compare with the French Solutrean. The discoverer, Gerasimov, would equate his site with the Aurignacian and has lately discovered a split-based bone lance-head to support his view. The remaining Siberian stations, despite the prominence of Mousteriform types (at Afontovagora II, lower layer, 70 per cent. of the stone implements fall into this class) are generally held to be later than Malta and accordingly comparable chronologically to the Magdalenian of France.

In European Russia stations on the plain which chronologically must correspond with the French Magdalenian are enumerated by Efimenko, but all, except perhaps Suponevo and Timonovka, lack the distinctive features of that culture. They still fall within the

† It will be recalled that a precisely similar phenomenon has been recorded in the modern pit-dwellings of Central Europe, which, in view of the facts here recorded, may be regarded as the oldest known type of house (see *ANTIQUITY*, x, 35-6).

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last Ice Age, and, like the stations of the Kostënki group, normally lie on the middle terrace of river valleys. The period (Final Aurignacian to Late Magdalenian) so richly represented by the two groups of open stations on the plain is left a blank in Bonch-Osmolovski's table of finds from Crimean caves—a blank which suggests that the relative datings by typology of the two series of sites may be misleading. After the Aurignacian of Syuren I he sets an Azilian represented in the caves of Syuren II and in the bottom layer at Chan-Koba. In both cases the flora is boreal as in the Aurignacian, but mammoth and other Arctic animals have finally disappeared though wild ass, Saiga antelope and *Cervus megaceros* persist. The lower Azilian level at Chan-Koba yielded angle graters and other blade tools, some small triangles and segments and one of those long pebble fabricators that are known as 'limpet scoops' in Scottish Azilian sites. Grooved bone points, to be armed with microliths, occurred in a higher 'Sviderian' level. Still higher up, when oakwoods had replaced the boreal trees and the Saiga and his compeers had vanished, comes a Tardenoisian industry that is strictly speaking neither geometric nor microlithic. The little tanged points, so common on the earlier post-glacial dune-sites on the plain and presumably derived from the shouldered points of Kostënki, seem unrepresented in the Crimean caves; their distribution on the plain is discussed by Voyedovski in the *Transactions*. V. G. CHILDE.

THE LEGACY OF ENGLAND: an illustrated survey of the works of man in the English country. With contributions by ADRIAN BELL, GEORGE A. BIRMINGHAM, EDMUND BLUNDEN, IVOR BROWN, BERNARD DARWIN, CHARLES BRADLEY FORD, R. H. MOTTRAM, G. M. YOUNG; and 114 illustrations from photographs. Batsford, 1935, pp. 248. 5s.

This book is composed of single chapters by the various authors on different aspects of the English countryside. The subjects selected are landscape, the farm, the village, the country house, the country town, the country church, the inn, and sport in the country. The treatment is more or less historical and evolutionary as well as descriptive. Mr Blunden is literary, displaying the English landscape reflected in contemporary literature from Chaucer onwards, and so, to some extent, is Mr Bell. Mr Ford's treatment of his chapter is economic, Mr Young's architectural, Mr Mottram's pleasantly discursive, Mr Birmingham's historical, Mr Brown's reminiscent, and Mr Darwin's faintly regretful. The pictures are delightful, and though we wish that Mr Ford had not described the Glastonbury Lake Village as 'raised up on stilts, three thousand years ago', yet this will be a companionable bedside volume, and is cheap at the price.

DINA PORTWAY DOBSON.

THE ENGLISH ABBEY: its life and work in the Middle Ages. By F. H. CROSSLEY. With a foreword by the RIGHT HON. W. ORMSBY-GORE. Batsford, 1935, pp. 128. 7s 6d.

This book is one of the most scholarly of the volumes on the Middle Ages issued by Messrs. Batsford. Though professing to be written for the general reader and the sightseer, it is in fact a concise account of the origins and development of monasticism in England; with chapters on the buildings, the life led within the walls, the monastic administrative system, its social value, and gradual decline. The excerpts from contemporary sources are numerous and illuminating, and a useful list of such authorities is appended. The illustrations, both photographs and sketches, are most attractive, and the plans good.

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This sympathetic study of the life of communities that were, with all their faults, for centuries 'fortresses amidst a world of savagery', as the author says, should be a help to many people who want to have a better understanding of the magnificent buildings left by the monks.

Two slips should be corrected in the next edition. Bristol, as well as Carlisle, was an Augustinian church that attained the rank of a cathedral (p. 6); and Matthew Paris lived in the thirteenth, not the eleventh century (p. 79). DINA PORTWAY DOBSON.

VORISLAMISCHE ALTERTUEMER. By C. RATHJENS and H. v. WISSMANN. (Hamburg University; Abhandlungen aus dem Gebeite der Auslandskunde, Band 38). Friederichsen: de Gruyter & Co., 1932, pp. 212 and 167 photographs. 160 diagrams, &c., with map. RM. 15.

LANDESKUNDLICHE ERGEBNISSE. (The same authors, series, and publishers. Band 40, 1934), pp. 229 and 225 photographs, 82 diagrams, 3 maps. RM. 20.

The authors were balked of their hope of a long journey through Arabia and had to be content with a trip from Hodeida to Sanaa and a few excursions from the capital; however, they made good use of their limited opportunities and have checked their observations, whenever possible, by those of others. The *Altertuemmer* describes the antiquities they saw and is very readable, for it tells about their dealings with the Arabs. They met difficulties in the excavation of a temple, a task which they undertook at the request of the Imam although they were not professional archaeologists, yet they kept on good terms with the local chief in spite of the fact that they got direct orders from the Imam to override his authority. The tale of their doings is the best testimonial to the authors. The temple, a few miles north of Sanaa, was of a kind hitherto unknown in Arabia. The sanctuary was so ruined that nothing could be learned of its interior. It was oblong, one long side faced a court which had colonnades on the other three sides. To right and left were other buildings but in the front (the east), the ground fell away sharply, just beyond the colonnade. In places the walls had been faced with panelled flags of stone; traces of painting were also found. The plan is like that of the main mosque in Sanaa, which may well be on the site of an earlier sanctuary. It seems that the temple was ruined by lava.

The lower courses of the walls of towns and castles are often Sabaeen; artificial caves in inaccessible cliffs, apparently graves, are common. Old cisterns are everywhere. The open ones are usually round, the covered ones, when oblong, are roofed by an arch, and if square the roof is supported by pillars. Those which are cut high in a hillside are like the pits to be seen in Galilee. The people were great masons but not great artists. The builders used one capital with many variations which are all angular. The authors saw one which they believe to be early; it is suggested to them that the angular forms were derived from the palm tree. The best bit of work found was the head and paws of a lion in bronze: it remains in Sanaa. The conclusion is that South Arabia was the land of Punt, that the builders of the elliptical temple at Marib were of another race than the Semites who built the square ones, which are also found in Ethiopia, a land colonized from Arabia.

The *Ergebnisse* can be read only by a geologist but this does not detract from its value as a scientific record. As the land rises 2000 metres in less than 30 kilometres, it is obvious that mighty forces have been at work and the country is a geologist's paradise. The authors saw only one cross-section of the country, so many problems are left unsolved.

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Lava of three ages can be seen and the latest is thought to belong to the early Christian era. Plant life is treated fully, including all crops, especially the distribution of coffee. But there is something for all tastes. The account of the Jews agrees with that given by Brauer in *Ethnologie der Yemenitischen Juden*, though taking a slightly more favourable view of their lot. They may own houses or land anywhere though they must live in a Ghetto. No Jews live among the Sunni Muslims; the authors do not say if it is still considered disgraceful to kill a Jew, as bad as hitting a woman. At the wedding the feet and hands of the bride are dyed black. There seems to be one mistake: the *tēba* is not the ark in which the scroll of the Law is kept but the desk from which it is read.

The highlanders differ from the lowlanders in race, religion, and habits. The straw hat of the lowlands is very like that worn in north Africa. The Zaidi sectaries are confined to the hills; among them are a few communities of Ismailis, who also inhabit Nejran in the north. During the decay of the Imam's power, nomad tribes from the east took to themselves rights of ownership in the hills, even in the extreme west facing the sea. This absentee ownership can be paralleled in north Arabia.

The photographs, sketches, diagrams, and maps are first class; the authors are to be congratulated on a fine piece of work. A. S. TRITTON.

A HUNDRED YEARS OF ANTHROPOLOGY. By T. K. PENNIMAN. (The Hundred Years Series, no. 4). Duckworth, 1935. pp. 400. 15s.

The table of contents indicates the range of this instructive book, which deals with the Scope of Anthropology; the Formulary Period: Anthropology before 1835; the Convergent Period: c. 1835-1859; the Constructive Period: 1859-1900; the Critical Period: 1900-1935; the Future; and appendices giving a chronological list of men and events, museums, bibliography, etc. The many and notable contributions which Oxford men have made to the anthropological sciences are freely noted, but not to the neglect of workers in other universities or institutions.

As one who in recent years has written a History of Anthropology* I have read Mr Penniman's book with great interest, but he has the advantage of having more space at his disposal and therefore can amplify his remarks, much to the benefit of his readers. The book can be recommended with confidence as giving a fairly well-balanced description of the progress of the anthropological sciences during the past one hundred years, and also as presenting a reasonably unbiased account of the theories and methods of numerous students. The 'theory of the archaic culture diffused from Egypt according to Elliot Smith and W. J. Perry' however, is curtly dismissed (p. 329) by a quotation from Pater W. Schmidt. Mr Penniman gives brief accounts of the comparative, evolutionary, historical, diffusionist, functional and other 'schools', all of which are merely methods of approach and no one of them a complete discipline. 'Attacks on the evolutionary school as it exists today are like flogging a dead horse. The best members of that school welcome the emphasis which the others have placed on a fresh outlook on the evidence, and refuse to be labelled. They simply keep an open mind and a critical, refusing to allow any one method to be enthroned as the only one' (p. 332). One feature of the trend of recent investigations clearly brought out by the author is the recognition that a psychological approach is necessary to most branches of ethnology. He quotes Rivers as saying 'I am one of those who believe that the ultimate aim of all studies of mankind, whether historical or scientific, is to reach an explanation in terms of psychology, in terms

* London; Watts & Co. 1934, 1s 6d. Reviewed ANTIQUITY, 1935, IX, 247.—EDITOR.

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of the ideas, beliefs, sentiments, and instinctive tendencies by which the conduct of man, both individual and collective, is determined'. He hopes that psychology 'will increasingly contribute its part in disclosing the origins of human actions and in giving direction to them' (p. 327). Accounts are given on pp. 66-70, 213-236, 332-338 of the progress of Archaeology, but without adding anything of importance to what has been previously published.

The book is so well documented that students can extend their investigations in all directions, but it is inevitable that omissions should occur; thus, a few authors who have made contributions of note to the science might have been mentioned, and when books have gone through more than one edition it is useful that the dates of at least the first and the last should be given, as it sometimes happens that they contain either different matter or another mode of treatment. A criticism of sins of omission or commission is dangerous as it is apt to have a boomerang effect. A. C. HADDON.

ISTROS: revue roumaine d'archéologie et d'histoire ancienne. Publiée sous la direction de S. Lambrino. 1, 1934 Fasc. 1. 45 *French francs per issue or annual subscription 60 French francs.* pp. 174, illustrated.

This new journal, designed to make more accessible the large amount of excellent work now being done in Rumania on Greek, Roman and prehistoric sites, deserves the most cordial welcome. It is concerned thus solely with lower Danubian archaeology, and its name is appropriately chosen. The most important articles, from which new and vital contributions to history can be obtained are those of M. Lambrino on the Ionian tribes of Histria, from which it appears that the Histrian Greeks were divided, even down to Roman times, into tribes of which the Aigikoreis and the Argadeis, with the religious cults that belonged to them, are specifically mentioned in inscriptions of Roman date. The importance of this paper to Greek historians is evident. A sarcophagus found at Tomi in 1931 is discussed by M. Coliu. Its interest lies in the religious symbols that adorn it, mainly of oriental religions from Asia Minor. Excavations on the Roman camp at Arcidava are fully reported, and add to our knowledge of Roman strategy north of the Carpathians. M. Vulpe discusses an Illyrian type of bronze axe and, with some audacity, associates its distribution with legends which place Phoenicians in those parts; his arguments are not convincing. M. Dimitrescu discusses the date of Cucuteni in great detail and throws much light on the matter.

Altogether it is an issue full of important material. The articles are all published in French. S. CASSON.

TERRACOTTAS FROM MYRINA IN THE MUSEUM OF FINE ARTS, BOSTON. By DOROTHY BURR. pp. 80 and 42 plates. No price or publisher stated. ('Manufactured in Austria'.) 1934.

This is in origin a dissertation for a doctorate. As a catalogue of one coherent group of minor works of art it will be valuable for general students of Greek art. Late Greek terracottas are rarely beautiful, often distressing by their sentiment and stupidity. Languid ladies, posturing Erotes and elegant nudes, when seen in bulk, tire the eye. There are a few fine pieces, such as the Nike figures, variants from one mould, which all derive from the Paenionian Nike. But none of the Boston pieces compares in quality with terracottas like the Heyl Aphrodite at Berlin. The Hellenistic Greek terracotta figurines of the Tanagra or Myrina type (and there is little difference) form an arid study

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of what are little more than interesting mantel-piece ornaments. The only value for research to be derived from them is the occasional contributions they afford towards our restoration of sculptured figures in marble, from which many of them are derived.

The coroplasts who made these figures can be identified by their signatures. Thirty-nine names of Myrinean coroplasts are known, and one is able to get some idea of the quality of the individual artist. Usually the resultant analysis is little more than a revelation of a permeating vulgarity previously suspected in individual pieces.

S. CASSON.

A MANUAL OF EXCAVATION IN THE NEAR EAST. By WILLIAM FREDERIC BADE.* *University of California Press ; Cambridge University Press, 1934. pp. 81, with 6 plates, 6 text-figs. 7s.*

If an infinite capacity for taking pains is a true criterion of genius it can never be better applied than to the archaeological excavator. And Professor Badé of the Pacific School of Religion in his *Manual of Excavation* shows that his capacity is indeed infinite. Readers accustomed to the more opportunist methods generally practised in Europe will be filled with awe by this chronicle of relentless efficiency on a Palestinian *tell*, where the spirit of Pure Science walks hand in hand with the spirit of Henry Ford.

The *Manual* is based almost entirely on the experience accumulated by Professor Badé himself during several seasons' work at Tell en-Nasbeh, and for an expedition like his, employing 150 men, women, and children a high pitch of organization is clearly necessary if disastrous loss of time and evidence is to be avoided. But the author goes too far when he claims that 'with unimportant modifications' his methods are 'applicable to archaeological enterprises in any part of the world'; his technique is largely unsuitable, or at least unnecessary, for the ordinary European excavation, and a great deal of the advice he gives refers only to the particular conditions of the Near East. In Europe, for instance, it is impossible to accept his dismissal of the trench system of digging as 'scientifically worthless', and how would the British workman react if faced with a list of rules forbidding him 'obscene songs or conversation . . . brawling, fighting, and the carrying of weapons'?

But for those to whom the book is primarily addressed, that is for those concerned with the excavation of a site like Tell en-Nasbeh, it will provide many very useful suggestions, perhaps even a scheme in its entirety. If the procedure of the actual digging sounds rather mechanical, the constant personal supervision of the director which the system ensures must do much to obviate the dangers of such mechanization. The method of clearing successive strips of the *tell* down to bedrock, refilling each with the dump material from the next, cannot be ideal for the understanding of a series of imposed city-levels, but it is certainly rapid and economical, and in the case of en-Nasbeh has allowed complete excavation to be accomplished within a reasonable period of time. The treatment of finds from their first uncovering to their final registration, while making heavy demands on the time and skill of the staff, is altogether excellent, combining detail and thoroughness with simplicity of reference. Pottery in particular is admirably managed, and the idea of using potters' finger-prints for tracing the contemporaneity of strata in separated areas provides a delightfully ingenious piece of technique. It is only possible to echo the words of one of Professor Badé's assistants—'In fact, if a more thorough method of handling pottery has ever been used I do not know of it'.

* While this review was in type we have heard with great regret of Dr Badé's death.

ANTIQUITY

Excellently printed though it is, an eighty page book of this kind seems dear at seven shillings; for economy it would be easy to dispense with a full page photograph of an ordinary card-file, and perhaps even with the group of handsome Egyptian foremen.

JACQUETTA HAWKES.

ROMANESQUE ARCHITECTURE IN WESTERN EUROPE. By A. W. CLAPHAM.
Oxford: Clarendon Press, 1936. pp. xvi, 208, 58 plans, 44 plates. 10s 6d.

This valuable book supplies the need of a volume, of wide survey but moderate cost, embracing the Christian architecture of Western Europe between the end of the ancient world and the rise of the pointed-arch or Gothic style. It is not a supplement to Mr Clapham's well-known books on English Romanesque Architecture, for it includes their results in a compressed form; and the range of its survey is immense, extending from Ireland and Scotland to the Crusaders' churches in Palestine, and in another direction from Sicily to Scandinavia. With such an enormous field, involving the mention of over seven hundred buildings, a great deal of detail cannot be expected; but in cases of importance, such as the dates of the Cluny capitals and the sculpture of the cloister of Silos, Mr Clapham spreads himself out, and puts the reader in possession of the essential facts. Another inevitable limitation in a student's book of this size and price is in the matter of illustration. Here and there one might criticize Mr Clapham's selection of the eighty-six photographs which are reproduced—*e.g.*, the view of the stupendous portals of Saint-Gilles gives only a very general idea of the arrangement, and is too small to show the details. But on the whole the choice is excellent, and fairly distributed between the architectural and decorative aspects of the subject; and it is supplemented by no less than fifty-eight plans of churches, and seven sketch-maps showing the position of the buildings in the principal countries. Casts of sculpture may be even more useful than photographs, and Mr Clapham does well to call attention to one of the grandest specimens, that of the Portico della Gloria, as the west portal of Santiago Cathedral is called, in the Victoria and Albert Museum. He might have mentioned that some of the reliefs from the cloister of Silos are also to be found there, not to speak of other works to which he refers.

What is Romanesque, and when did it begin? Mr Clapham rightly says that it is the descendant of Roman building; and indeed when one stands inside great English churches of the twelfth century, such as Peterborough and Norwich, one can feel the inspiration of the great Roman basilicas, in spite of the differences of treatment and detail. But before this fully developed Romanesque is reached, the 'Dark Ages' intervene, including, as Mr Clapham's chapter shows, the last efforts of the ancient tradition in Theodoric's buildings at Ravenna and Charlemagne's at Aachen, together with the barbaric Lombard and Merovingian examples in Italy and France, and the Anglian churches of our own country. It is only in the tenth century that the 'First Romanesque' architecture begins to appear in the north of Italy, the Rhone valley, and the shores of the Mediterranean as far as northeast Spain. Its characteristic was the use of stone vaulting for the roof, though at first this was confined to a narrow bay in front of the apse. But ultimately the whole church was vaulted, and so we are led on to the great eleventh and twelfth century churches of north and south Italy with their richly sculptured decoration, chiefly on the façades; for it was left to the French to develop and bring to perfection capitals, both of columns and cloister-shafts, carved with figure-subjects, for which Mr Clapham uses the rather harsh-sounding epithet 'historied' instead of the

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traditional and perfectly intelligible 'storied'. Monumental or decorative sculpture, though belonging to the history of art, is indissolubly connected with architecture; and in each section the story of structural evolution is followed by an account of the carving which went with it. There are notable examples of the sculptured portal in Italy (Modena, San Zeno at Verona, Pavia, etc.), but here again the great development (especially of the tympanum) belongs to France, where the portals of Moissac, Vézelay (c. 1120), and Saint-Gilles (c. 1150) show the high water-mark of achievement. With the latter Mr Clapham mentions the suggestion that some of the inspiration may have come from the Roman triumphal arch. The illustration (pl. 27a) of the relief of Ève in the garden, from Autun, will be to many a revelation of what 'alike for its simplicity and allurements must be considered one of the masterpieces of Romanesque art'.

It is in the twelfth century that we find the fully-developed Romanesque in France, where the features of no less than eight local or provincial schools are described; in England, where, through the Norman Conquest, even grander results are to be seen, e.g., at Durham and Norwich; and in Germany, where, in the great churches of the Rhineland, a special type of basilica was evolved, with a distinctive outward appearance. Besides these fairly familiar fields, students will find summaries of the church architecture of the outlying countries—Ireland, Dalmatia, Hungary, Scandinavia. The Byzantine architecture of the East is excluded from the survey, but account is taken of the Byzantine elements in the Norman churches of Sicily, especially the mosaics of Palermo, Monreale, and Cefalù. On the other hand a chapter is devoted to the Crusaders' churches in Palestine and Syria, because their architecture was 'in all its essential features a French art', though forming a separate school. It lasted barely a century, but Mr Clapham has something to say about the features which the Crusaders brought back with them from the East, the most important being the pointed arch, which is found in Moslem buildings of the eighth century, and appears in France early in the twelfth.

Of late years archaeologists have devoted a good deal of study to the church architecture of Spain. The names of Lampérez y Romea, Puig y Cadafalch, and the late Prof. Kingsley Porter, have become familiar to students of these matters; and it is significant that the frontispiece (repeated on the cover) of this book is a view of the impressive but sombre interior of Santiago. Mr Clapham lucidly sketches the present state of our knowledge, not forgetting the Visigothic churches of the seventh century, where he finds the earliest examples of the horse-shoe arch; and he deals rather fully with the sculptures of the cloister of Silos, which Kingsley Porter would have dated before the end of the eleventh century, while Mr Clapham demonstrates that in all probability they belong to the middle and latter part of the twelfth. On the other hand he is decidedly in favour of Kingsley Porter's belief that the famous sculptured capitals of the apse of Cluny are contemporary with its completion in 1095, instead of belonging to the next century as the French authorities maintain. With regard to Cluny we should have liked to hear rather more than Mr Clapham has told us about the excavations being carried out by Professor Conant, but as that work is unfinished he may have thought it best to wait till the results are more complete.

Altogether students are deeply indebted to Mr Clapham for this book, and it can be recommended heartily for their use. As it will remain for a long time the English manual for its subject, it may be worth while to notice a few corrections which might be made in future issues. After Professor Hamilton Thompson's explanation of the term 'Commacine masters' as *Co-macini* (like *commonachi*) or associated masons, its meaning can hardly be described as 'still obscure' (p. 4). By a slip of memory, an

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article on Pisan churches is ascribed to 'E. Jackson' instead of Miss E. Jamison (p. 45 note). San Fedele (not Fidele, p. 36) is the usual form of the name of a well-known church at Como, and 'Santa' (not 'San', p. 47 note) Prassede is the correct title of the Roman church. Students may not understand the meaning of 'U. L. F. Halberstadt' (p. 162, for the church of 'Unsere Liebfrau' or Our Lady), and a uniform transliteration should be adopted for the forms 'Umayyad' (p. 132), 'Omeiyade' (136), and 'Umeiyade' (95).

G. MCN. RUSHFORTH.

LOCAL COLOUR: A landscape analysis for sightseers. By E. F. VALE. *J. M. Dent*, 1934. pp. XII, 275. 5s.

This fascinating little book contains an amazing store of information on all sorts of subjects in any way connected with landscape and scenery. Without writing in a too technical style, the author presents us with a remarkable number of facts in a palatable form. The style is for the most part free and pleasant, though occasionally descending into rather peculiar colloquialisms.

Starting with a few remarks on the aesthetic value of landscape, he passes to an interesting treatment of elementary geology, emphasizing the importance of geology in the formation of history. In a chapter called 'Trees and Woods', he deals with all sorts of subjects connected with timber, from its growth in the forest to its use in the building of houses or the making of furniture. An original if rather dubious theory is expounded about the lore of the rowan, but the author makes a definite mistake in assigning a Celtic origin to Runes. His theory as to the origin of Oghams is ingenious.

Another chapter deals with flowers, not omitting points of folklore and mythology connected with the subject. Objection may, perhaps, be taken to his saying that the 'fuchsia is of too bloated a colour for beauty', that flax is 'a monstrosity', or that the colour of the willow-herbs 'is a kind of washed-out red, with neither warmth nor elegance to recommend it'. He cannot have seen rose-bay growing in great profusion.

Then comes an interesting, if slightly confused chapter, entitled 'Birds, Creatures, and Water' which contains one or two mistakes, the chief being the acceptance of the false etymology of 'swallow-holes', and the reference to the singing nightingale as 'she'.

Selections from the author's notes on landscape, made 'on the spot', are followed by appendices on many subjects, including a list of Royal forests.

The book is full of useful information and should appeal to a wide public.

MERIC DOBSON.

ANCIENT TIMES: a History of the Early World. By J. H. BREASTED. Second edition. Boston, Ginn & Co., 1935. pp. XIII and 823, 4 plates and 32 maps. 10s 6d.

Few text-books on ancient history can have had such a wide popularity as the first edition of this book, published twenty years ago. Breasted had already brought out his *Short Ancient History* in 1915, which was a separate edition of his contribution to the *Outlines of European History* (1914) by James Harvey Robinson and himself. So that he staked his claim to this field, so far as English-speaking schools were concerned, only a year later than H. R. Hall made himself indispensable to Universities and more advanced students by the publication of his *Ancient History of the Near East* (1913).

Rostovtzeff's *History of the Ancient World* has challenged Hall's dominion since 1926. But in the schools Breasted has had no rival, and has justly earned the gratitude of teachers wherever the subject is taught in English.

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During the interval since the first appearance of *Ancient Times*, as readers of ANTIQUITY are well aware, the increase of archaeological research and of scientific excavations has been more marked than ever previously, and it was high time that a second edition should appear if the author was to continue to enjoy his reputation as a historian. The revised edition is in fact 'largely rewritten', and it is not surprising that this should have been necessary. Even so, specialists will no doubt complain that it is not rewritten sufficiently to bring it up to date with the most recent discoveries in their own fields. To quote a single example:—Dr Breasted's position with regard to Akhenaten seems not to have changed materially from that expressed in his *History of Egypt* (1905), though a great deal has been since written to modify the exuberance of that outlook. However all such narrow criticism must give way to admiration for the man who could undertake such a survey at the present time in so comparatively a small compass. And certainly none was better equipped to grasp the detail and weld together the results of all the new discoveries in the field during the last twenty years, than the Director of the Oriental Institute of the University of Chicago. With upwards of twenty expeditions under his control scattered over the whole Near-Eastern area, he was constantly visiting the latest scene of excavation, receiving the last word in important discoveries, with a mass of recently acquired information, as yet unpublished, at his disposal, and most important of all, seeing the whole ancient world always as a united development. His death the other day robbed the study of Ancient History of one of its most effective benefactors; but in his second edition of *Ancient Times* he has not only given a new lease of life to a most valuable text-book, but has also left us a monumental tribute to the breadth of his own viewpoint, to his understanding of ancient peoples, and to his tremendous desire to inspire his fellows with the story of human development.

S.R.K.G.

MÜNZDATIERTE AUSTRASISCHE GRABFUNDE. By JOACHIM WERNER.

Band III: Germanische Denkmäler der Völkerwanderungszeit. Edited by Hans Zeiss for the Römisch-Germanische Kommission. Berlin and Leipzig, 1935. pp. ix, 157 with 38 line and 5 collotype plates. Price not stated.

This is the third volume in the admirable series of Migration Period monographs, edited by Dr Zeiss on behalf of the Römisch-Germanische Kommission, and, like the two already published, it is an able and informative work. It cannot fail to earn an enviable reputation for its author, whose keen insight and sound judgment invest this long plodding survey with an importance that is not surpassed by any of the excellent publications produced by the Kommission under the leadership of Dr Bersu. This new volume takes the form of an investigation of the chronology of the Reihengräber from the fairly secure stand-point of the numerous graves dated, or at least chronologically controlled, by coins. Its aim is to provide a working classification into broadly defined archaeological periods, and it has, wisely, little to do with the determination of ethnic groups; in fact, it may be said to provide a chronological cross-section through the archaeology of the eastern Franks, the Alamanni, the Thuringians, and the Bavarians. In his early pages Dr Werner has many very sensible things to say about the value, or lack of value, of coins as dating material in Teutonic graves, and the periods into which he finally groups the controlled burials seems to me to inspire an ungrudging confidence. His system is not quite the same as that proposed by Veeck in the first volume of this

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series, but Werner's closely-reasoned case deserves respect and will probably be accepted with very little modification. I do not think that the author fully appreciates the importance of style in the matter of the cloisonné jewellery, and to a foreign reader it seems that he does his material less than justice by his insistence on derivations from the archaeology of the Lombards. We all know that most of the Reihengräber material is poor indifferent stuff, but surely it is not so bad as to depend on Lombard influence to the extent claimed here. For the Lombard culture is a miserable derived thing, faltering and half-hearted in stylistic expression, and, in so far as it is purely Lombard, a reflection of fashions already old in the outer Teutonic world, whence the Lombards came. Did ring-swords, may I ask, evolve backwards? Does the cupped cloison of the Flonheim scabbard, to which I have called attention (ANTIQUITY, VII, p. 446), begin, instead of ending, on the sword-scabbard from Nocera Umbra 1? And surely the heavy insipid Lombardic version of Style II tells its story too plainly for us to believe that we have in Italy of the late 6th century a flowering of a rich and original decorative art likely to impress profoundly and to be dynamically important. Werner, of course, does actually establish certain Lombard influences, and he shows convincingly how they came to affect his area; but I think it would have been as well to review other possible sources before hammering so hard at the Italian connexion.

The book abounds in interest. I would like especially to call attention to the appendixes, above all the note on the origin of the 'Spangenhelm'. There is also a list and distribution-map of the Coptic bronze bowls, which unquestionably appear in late graves. In a Wonsheim grave (Tf. 34) one appears side by side with a bronze ewer like our Wheathampstead example. This grave is dated after 600 and is a fine analogy to our Sarre grave in the British Museum with its ugly late brooch; here the Coptic bowl is described as 'ein sehr stark abgenutztes und geflicktes Becken', and I may say that in the Sarre grave the bowl is also a disreputable antique and has had its bottom patched. Weimar Grave 84 (early 6th century) contains one of the inlaid iron buckles of precisely the type that was found at Prittlewell in Essex; there are other buckles in this special technique from southern England and it is possible that they represent a survival of a Roman craft, for I have seen styli ornamented in this distinctive striped fashion. The brooches in Schretzeim 26 look, judging only by the drawings, as though they have re-made backs, and if this is so they may be a little older than the graves. But this late cloisonné is obviously very poor work, as indeed the Wittislingen find proves, and one can tell at a glance that Soest 106 is early 7th century. Dr Werner compares the Wonsheim brooch (Tf. II, 4a) with our Kingston brooch, which suggests to me that he is working from Salin's figure and not a photograph (e.g. ANTIQUITY, VII, opp. p. 141). I should like to hear more about the honey-comb cloison that is imitated in the late silverplated iron-work (Tf. 33). Does this pattern of cloison actually occur in jewellery in the Reihengräber? The style seems to begin in Italy in pre-Lombardic finds like the Cesena treasure, and we have it in England in 6th century composite jewelled brooches. It is drawn on the back of the Wittislingen brooches, but I have no record of it in garnet inlay in the Rhineland or southern Germany. This curious shadowy and obviously late repercussion of a distinctive style seems to me to be typical of the remote and derived nature of much of the archaeology of the Reihengräber. Dr Werner's study helps enormously in the elucidation of this material, but I hope the fact that it is now so beautifully and so skilfully presented to us will not suggest that it is the place where we are especially likely to find the sources and earliest dates of the fashions that interest us all.

T. D. KENDRICK.

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ILLUSTRATED REGIONAL GUIDES TO ANCIENT MONUMENTS under the ownership or guardianship of His Majesty's Office of Works. Volume 1. Northern England. By the Rt. Hon. W. ORMSBY GORE, F.S.A., M.P., First Commissioner of Works. *London: His Majesty's Stationery Office.* To be purchased directly from H.M. Stationery Office at the following addresses: Adastral House, Kingsway, London, W.C. 2; 120 George Street, Edinburgh; York Street, Manchester; 1 St. Andrew's Crescent, Cardiff; 80 Chichester Street, Belfast, or through any bookseller. 1s, postage 2d.

This is the first of the regional guides to the monuments under the control of H.M. Office of Works and deals with the six northern counties. They are designed in the words of the preface 'to supplement the more detailed archaeological data available by a more general and popular account of all the monuments in a group of counties'. The scheme and general lay-out of this little volume is excellent. A brief historical account of the Prehistoric, Roman and Medieval periods is followed by notes on each of the monuments, hours of admission and admission fees. The accounts of the Prehistoric and Roman periods are somewhat unbalanced, the former being almost entirely confined to Yorkshire and the latter to Northumberland. No doubt the most important Roman works in the district are concentrated in Northumberland and Cumberland along the line of the Roman wall. There is less excuse, however, for the Prehistoric section being almost entirely based on Yorkshire. Long barrows are not entirely absent from Northumberland, three at least having recently been identified. Besides the few beaker sherds found near the Northumberland coast, over thirty beaker burials are known in the county. There are megalithic monuments in Northumberland as well as in Cumberland. The 'Mare and Foal', the 'Poind and His Man' and the 'Four Kings', whilst perhaps not so imposing as 'Long Meg and her Daughters', are still evidence that the megalithic builders were not restricted in their distribution to the western side of the Pennines.

There is a good concise account of the Roman period of occupation. Agricola's road, from Carlisle to probably Corstopitum, is the Stanegate not 'Stane Street', and it is perhaps rather unfair to suggest that there are only scanty remnants of it; considerable lengths of the road are still in use. Once again General Wade is described as the 'greatest destroyer' of Hadrian's Wall. Actually he had been in his grave about four years before the Military Road was commenced.

Mr Ormsby Gore is most at home with the Medieval period. The castles and ecclesiastical buildings in northern England which are under the control of H.M. Office of Works include such magnificent specimens as Warkworth Castle, Byland, Easby and Rievaulx Abbeys and Kirkham Priory.

The volume contains twenty excellent photographs and a useful plan showing the distribution of the monuments. W.P.H.

[Criticism of minor details must not be allowed to obscure the fact that, by issuing this admirable series of guides, the First Commissioner has earned the gratitude both of the specialists and of the general public. Since this review was in type we have received the second Volume of the Regional Guides—Southern England: Avebury, Stonehenge, Maiden Castle, Portchester Castle, Dover Castle, Pevensey Castle, Richborough Castle, Nunney Castle, Tintagel, Carisbrooke Castle, Farleigh Castle, Netley Abbey, Muchelney Abbey, Old Sarum, Restormel Castle, among other notable monuments. It will, we are certain, meet with the same general response which has been given to the first volume.—EDITOR.]

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ANCIENT MONUMENTS AND HISTORIC BUILDINGS. H.M. Office of Works. CORBRIDGE Roman Station (Corstopitum) Northumberland. Official Guide by ERIC BIRLEY, M.A., F.S.A. London: His Majesty's Stationery Office. 6d, postage 1d.

There are guides and guides. This is one of the best sixpennyworth that we have seen. It combines a useful account of the site with a brief description of those parts which are still to be seen and the objects found. The description of Corstopitum as a 'station' is perhaps misleading to some, but it was an important road station during the greater part of the Roman occupation, and it was perhaps only the death of the emperor Severus at York in A.D. 211 that prevented it from becoming a legionary fortress. An adequate description of the finds could hardly be contained in the four and a half pages allocated to this section. Mr Birley more than hints that Corstopitum may have had some sub-Roman existence after the close of the 4th century, and the fact that the names of Corstopitum and Luguwallium (Carlisle) alone of all the Roman sites in Northumberland and Cumberland are still partly incorporated in the modern names of the sites is suggestive. Corchester was the name attached to the site of Corstopitum, and the Anglian *chester* of the one gives place to the Celtic *caer* of the other. W.P.H.

Books Received

THE ANCIENT BRIDGES OF WALES AND WESTERN ENGLAND, by E. Jervoise. *Architectural Press*, 9 Queen Anne's Gate, Westminster, S.W. 1. 1936. pp. XII, 180, 91 illus. 6s 6d.

YORK MINSTER AND NEIGHBOURING ABBEYS AND CHURCHES, by Gordon Home. *J. M. Dent*, 10-13 Bedford Street, W.C. 2. 1936. pp. 192, numerous illustrations. 2s. 6d.

ANCIENT BURIAL-MOUNDS OF ENGLAND, by L. V. Grinsell. *Methuen*, 36 Essex Street, W.C. 2. 1936. pp. XII, 240. 24 plates, 11 text-plans. 12s 6d.

THE NORMANS IN GLAMORGAN GOWER AND KIDWELI, by Lewis D. Nicholl. *Cardiff: William Lewis*, 39 Penarth Road. 1936. pp. 208. 8s 6d.

PARISH CHURCHES OF NORFOLK AND NORWICH, by C. J. W. Messent. *Norwich: H. W. Hunt*, 14 Orford Hill. 1936. pp. 298. 7s 6d.

NIEUWE DRENTSCHE VOLKSALMANAK, 1936. *Assen: Van Gorcum and Co.*

MEDIEVAL INDIAN SCULPTURE IN THE BRITISH MUSEUM, by Ramaprasad Chanda. *Kegan Paul and Co.*, 68 Carter Lane, E.C. 4. 1936. pp. XIV, 78, 24 plates. 10s 6d.

THE ROMAN INVASIONS: A SAGA OF THE CALEDONIAN RACE, by Laurence O. Pitblado. *George Allen, Museum Street, W.C. 1.* 1935. pp. 160, with maps.

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Editorial Notes

AS we near the end of our first decade, it is natural to look both forwards and backwards. The habit of reminiscence is a recognized sign of age, but we will spare our readers until our next, the fortieth, number, when we propose to tell them something about the origins of ANTIQUITY. Fortunately its founder had sufficient faith in its future, even before the first number had appeared or even been discussed, to jot down from time to time notes on the development of the idea, and a few of the more important dates.



Who knows what the next decade holds in store for us? Certainly not the scientific worker who demands only to be given the means of carrying on his researches for the advancement of knowledge. The work he does may be organized on a national basis and his problems may present themselves under a national guise; that is merely fortuitous. It is necessary to concentrate upon a limited region (or subject) in order to achieve results, and in many instances the region selected is one's own country or part of it. But no one knows better than the archaeologist how dependent he is upon the workers in another region. One of the difficulties encountered in 'megalithic' research, for instance, is the relative backwardness of the workers in adjacent regions, such as Ireland, Brittany and the Iberian peninsula. That backwardness is being remedied, particularly in Northern Ireland, where an active group is at work; but it will remain somewhat of a handicap for many

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years to come. Even the most bigoted nationalist must admit this mutual interdependence, and does so in practice. But the advance of knowledge here is conditioned by the pace of the slowest.



Then, again, the organization of what is called international research is impeded by those recent but obsolete obstructions—independent sovereign States. Recent they are, judged by the time-scale of history and archaeology, which is marked off in centuries and millennia ; and obsolete because they bear no relation to the means of production and transport that scientists have created. To the archaeologist, national frontiers are a temporary phenomenon of no more importance, and no less, than those other frontiers, political and military, which he meets with from time to time in his researches. Sometimes he abuses them as unmitigated nuisances—when, for instance he comes across a distribution-map of some type of prehistoric object—sword, brooch or pot—that stops short at some national frontier. What we all want to know, of course, is the *total extent* of its distribution. Its range over a political region that had no existence at the time is meaningless, and the evidence, presented in this way, may even convey a false impression. To some extent the student must be bound and confined within such limitations, so long as they exist ; but he should never allow himself to be dominated by them.



These remarks apply mainly to the individual worker. When we come to consider co-operative research, the difficulties can only be realized by those who have made a resolute effort in that direction. The whole trend of modern science is towards undertakings that involve international co-operation. Meteorology and astronomy are perhaps the best instances. The organization of science has outstripped the political and social organization of most of the world which still holds it in bondage.



The late Professor Haverfield, in his articles in the *Victoria County History of England*, kept reminding his readers that to speak of 'Roman Hampshire' or 'Roman Worcestershire' was an absurd anachronism, for such entities had no existence in Roman times. They may be

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adopted as necessary units of study, but no more. Let us for a moment suppose that Britain is still divided up into kingdoms, and that some one sets out to compile a map of Roman Britain—a perfectly legitimate aim, for Britain is an island, and was formerly a single province of the Roman Empire. The organizer may be supposed to be a subject of the Kingdom of Wessex : he has to obtain the co-operation of his colleagues in the adjacent Kingdoms, and they are all anxious to collaborate. Their activities, however, are restricted and to some extent coloured by the policies of their respective governments. Mercia adopts the scheme with enthusiasm, so far as Mercia is concerned, but for political reasons cannot collaborate with East Anglia, portions of whose territory are included upon the sheets allotted to Mercia. Kent is slow to act and suspicious of all that emanates from Wessex. Northumbria lay for the most part beyond the effective Roman frontier, and is for the moment inordinately proud of the fact ; consequently the project has no propaganda value and is adopted without enthusiasm. Wales is in the throes of recurrent revolutions ; Cornwall has no archaeologists, and Scotland no maps. (We hope no one will quote these remarks out of their context !).



We have now almost forgotten the parochial patriotisms of the Heptarchy, though they were real enough in their time. We forget that Great Britain has been a single political unit for barely more than a couple of centuries, and that some of the most vocal nations of Europe are still younger. The mere supposition (as above) that our own regional animosities still existed is enough to make them appear absurd. Perhaps some future Editor of this Review, endowed with ampler scope and greater freedom of expression, will be able to set down plainly, as a matter of history, what has now to be told in the form of a parable. We commend it to him, whoever he may be, as a subject for the Editorial Notes of the hundredth or thousandth number !



So far as the policy of this journal is concerned we have consistently tried to disregard national bias both in the selection of articles and in the expression of opinion. Being human, we have not always succeeded. But we do claim that we try always to act in what we believe to be the interests of science and of our readers. Our standard of judgment

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is scientific worth, not national ballyhoo. We have not hesitated to criticize the short-comings of British institutions when we have thought such criticism was needed—in the matter of the organization of research and museums, for instance. On the other hand, we have tried to do justice, and get justice done to the very real achievements of our fellow-countrymen whenever we think they deserve it.



Professor R. G. Collingwood writes (from 15 Belbroughton Road, Oxford) :—

‘ Since Professor Haverfield’s death, his project for a complete *corpus* of Roman inscriptions in this country has been going forward. Most of the inscriptions have been re-read and drawn by myself ; much new material has been added ; and arrangements for publication have been made with the Clarendon Press. The collecting of materials is now almost at an end. During the present year a final search is to be made for inscriptions not yet collected. To help in organizing this search three clearing-houses have been establishd. For England, south of a line joining Gloucester to the Wash, the collector is Mr C. E. Stevens, Magdalen College, Oxford ; for everything north of that line, Mr E. B. Birley, Chesterholm, Bardon Mill, Northumberland ; for Wales, Mr. V. E. Nash-Williams, National Museum of Wales, Cardiff. If any one reading this announcement knows of Roman inscriptions in private possession or in out-of-the-way places where they are likely to have escaped search hitherto, he is invited to communicate with the appropriate collector, and any information he can send will be gratefully welcomed. Every inscription of Roman date is wanted, except the following three classes : (1) coins, (2) makers’ names stamped on Samian ware, (3) inscriptions brought from foreign countries by travellers in modern times ’.

We hope that any reader of these lines who can help will do so. Here at any rate is an undertaking where co-operation is easy, and where a minimum of effort may yield a maximum of result.

Origin and Early Diffusion of the Traction-plough

by CARL WHITING BISHOP

Freer Gallery of Art, Washington

THE earlier efforts of mankind to assure an abundance of food consisted largely in the performance of magical ceremonies, frequently orgiastic in character. It is sometimes forgotten that such methods, even after regular cultivation had come into being, long continued to survive in close association with what we should consider more rational procedures. Yet this is a fact which we need to keep steadily in mind while we try to work out the early history of the traction-plough, which here refers to ploughs drawn by animals, especially those of the ox-kind.

Certain members of the genus *Panicum*—the millets—seem to have been the first cereals actually cultivated. These, grown with the aid of the hoe and the digging-stick under the *jhūm* system of tillage, had spread over a large part of the Eastern Hemisphere before the close of Neolithic times. Under this system, small plots of ground are cleared, often with the aid of fire, and are then tilled for two or three years until their fertility has been exhausted, when they are abandoned.

It was not, however, the growing of millet but rather that of wheat and barley which became associated with the development and diffusion of true agriculture. The first steps in this process had already been taken long before the dawn of history—possibly even before the end of the Epipalaeolithic period.¹ Hand in hand with the greater stabilization thus gradually brought about in the food supply there went a corresponding increase of efficiency in the instruments employed in its production. Of these, the hoe and the pick have never undergone improvement save in matters of detail; in principle they remain today what they were in prehistoric times. To regard either of them as *directly*

¹ E. Cecil Curwen, 'Agriculture and the Flint Sickle in Palestine', *ANTIQUITY*, 1935, ix, 62.

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ancestral to the plough is to be misled by superficial resemblances in non-essentials.² For example, the hoe-handle can scarcely have been the origin of the plough-beam; for the latter, as we shall see, appears to have been absent in the earlier ploughs, its place being taken by a rope.

It was quite otherwise with that archaic implement, the digging-stick. This in time developed into the foot-plough, which assumed a variety of forms, either curved or else bent at an obtuse angle, and provided with a rest against which the cultivator pressed with his foot. Possibly the 'shoe-last celts', characteristic of the Central European culture known as Danubian I, were in some instances at least the shares of prehistoric foot-ploughs.³ In regions as far apart as Ireland, China, and even Peru, men using implements of this class have worked in pairs abreast, walking backward, their belief being that in this way they can accomplish much more than when acting independently.⁴ Such instruments are still employed in parts of the British Isles, the Sudan, the Far East, and elsewhere.

A further step in the direction of more effective tillage was the application of the principle of traction. By this method, while one individual pushed the implement, one or more others pulled it with cords.⁵ This practice likewise attained a wide distribution. It appears

² In the *Méms. Soc. Royale des Antiquaires du Nord*, 1902, Sophus Müller, 'Charrue, joug, et mors', p. 39, points out that the earlier Egyptian hoes differ more from the contemporary ploughs than do later ones.

Berthold Laufer, *Jade*, 1912, p. 48, and Paul Leser, *Entstehung und Verbreitung des Pfluges*, 1931, p. 558 and note 29, both regard the hoe and the plough as possessing different histories.

³ V. Gordon Childe, *The Dawn of European Civilization*, 1925, pp. 66 and 172; cf. the lower example in fig. 77, p. 172; see also the same author, *The Danube in Prehistory*, 1929, pp. 40, 45.

⁴ For an account of the Peruvian *taclla*, see the *Smithsonian Report*, 1918 (publ. 1920): O. F. Cook, 'Foot-plough Agriculture in Peru', pp. 487-91. In view of the striking similarity of the *taclla* to certain western European implements, it may have been introduced into South America by the Spanish, as we know was the case with the traction-plough itself.

For information regarding the Irish *laidh* and its use I am much indebted to Dr E. Cecil Curwen. The practice in vogue among the ancient Chinese is often mentioned in their classical books; for information concerning its modern survival I have to thank Dr. A. W. Hummel, of the Library of Congress, whose observations in the field confirm my own. The mode of using the Peruvian *taclla* is fully described in the paper by O. F. Cook cited above.

⁵ W. M. Wundt, *Elements of Folk Psychology* (trans. by E. L. Schaub, undated), p. 291.

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to have existed at one time or another in nearly every part of the north temperate zone of the Old World. Perhaps certain large leaf-shaped stone implements found in northern China were the shares of such primitive man-drawn ploughs.⁶ Instruments operated on this principle were used until lately in parts of Europe ; and they still survive in



FIG. 1. MAP SHOWING APPROXIMATELY THE DISTRIBUTION OF THE TRACTION-PLOUGH PRIOR TO THE AGE OF DISCOVERY (ABOUT A.D. 1500)

The area indicated very closely coincides with that in which were found in antiquity many other important culture-elements, among them bronze, wheat and the horse drawn war-chariot

discontinuous and usually backward areas from North Africa and South Arabia right across to the extreme east of Asia.

The substitution of animal for human power marked the final step in the evolution of the true traction-plough. This change seems

⁶ Père E. Licent, *Collections Néolithiques du Musée Hoang ho Pai ho*, 1932, 1, 12.

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most likely to have been initiated through the operation of ideas which we should consider the reverse of utilitarian, but which to earlier peoples seemed rational enough.

That the bull and the cow have often been regarded as embodiments and even as gods of fertility is well known. Such beliefs seem to have been more especially prevalent in those lands where wheat and barley were cultivated in antiquity. It was perhaps the wish to enlist the magical fertilizing force believed to inhere in the ox-kind rather than to secure the aid of their physical strength which led to their association with the operations of early agriculture. On Egyptian reliefs both bulls and cows are seen employed in traction, and they are still so used in many lands. The use of the ox could only have been a



FIG. 2. SUMERIAN PLOUGH, ABOUT 2400 B.C.
(After Ward, 'Seal Cylinders', p. 133, no. 374)

later development. Castration, of bulls as well as of men, probably originated as a feature of those orgiastic fertility cults so common in the ancient Near East; it symbolized a dedicatory sacrifice—a species of ritualistic synecdoche. Only after the practice had become established could men have learned that animals thus treated are thereby rendered more docile.⁷

The plough itself has often been regarded as a direct gift from the gods. The Egyptians ascribed its origin to Osiris, the great patron of agriculture, while the Vedic Indians believed that the Aṣvins had taught its use to mankind. In Greece its invention was variously imputed—to Zeus or Dionysos, to Pallas or Demeter. In China its origin came to be attributed both to Shên-nung, the 'Divine Husbandman', and to a (mythical) grandson of Hou Chi, 'Ruler of the Millet'.

⁷ This question is well discussed by Wundt, *op. cit.*, pp. 290 sq.

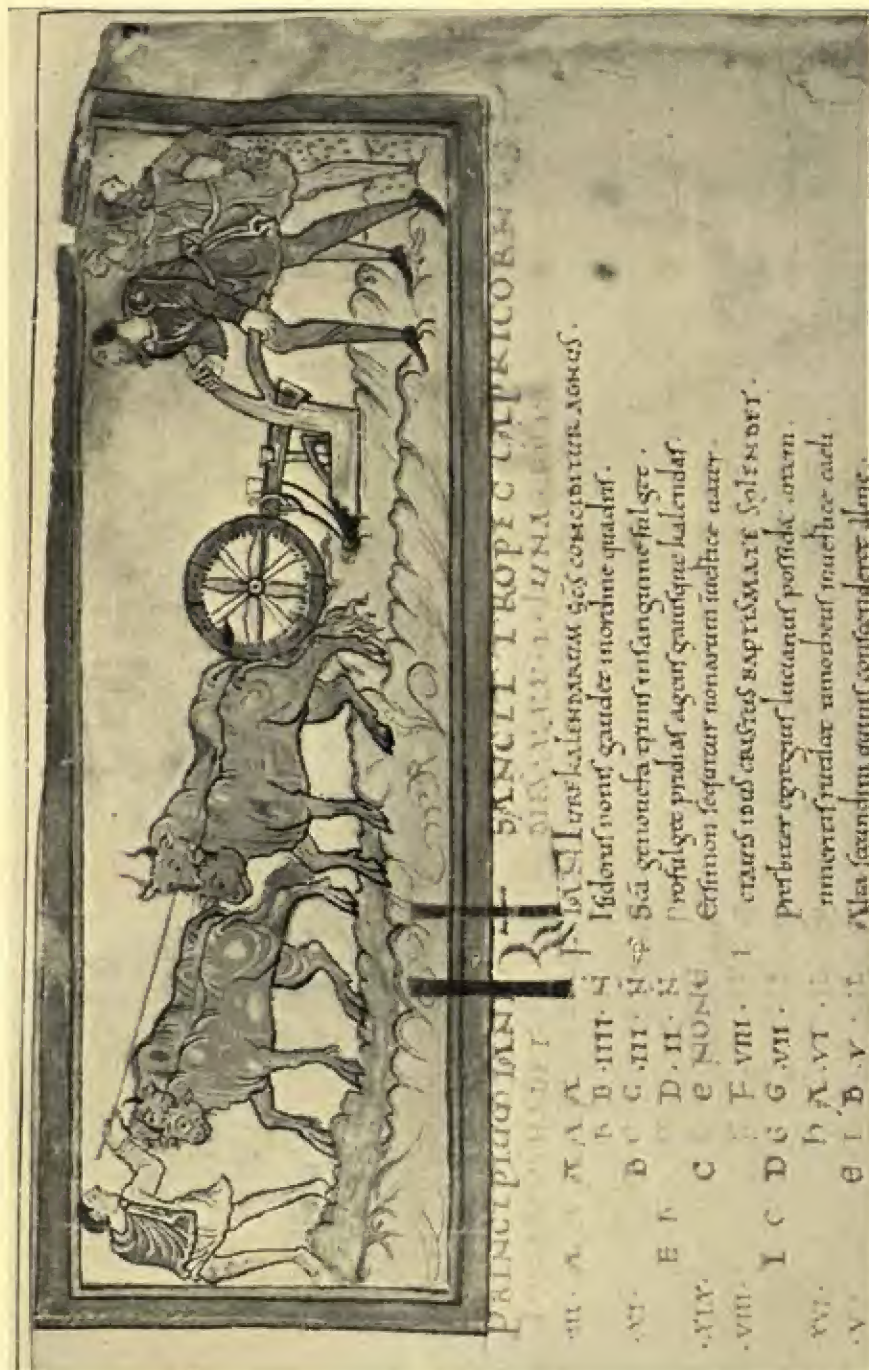


FIG. 8. FROM COTTONIAN MS. Tib. B. v (part 1), fol. 3. (11TH CENTURY).
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PLATE II

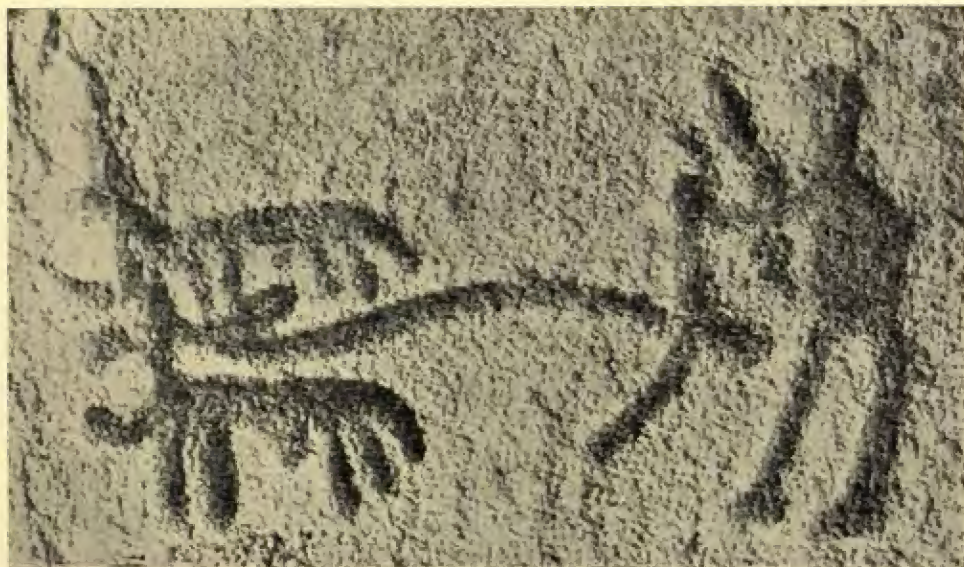


FIG. 9. SIMPLER OF THE TWO TYPES OF PLOUGHS SHOWN AT BOHUSLÄN
(After Söplius Möller)



FIG. 10. INDIAN PLOUGH OF THE GANDHARA PERIOD
(After A. Foucher, *L'Art gréco-bouddhique de Gandhara*, I, 342, fig. 175)

PLATE III



FIG. 17. NORTHERN CHINESE PLOUGH WITH CURVED IRON BEAM AND SWINGLE-TREE
(Copyright, Messrs White Brothers, by permission)

PLATE IV



FIG. 12. PLOUGH DRAWN BY A SINGLE ANIMAL, COMMON IN CENTRAL AND SOUTHERN CHINA AND IN SOUTHEASTERN ASIA GENERALLY
(Copyright, Messrs White Brothers, by permission)

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This intimate connexion of the ox-drawn plough with religious ideology suggests the query whether it was not itself actually of priestly origin, and first employed in the production of sacred crops, destined for ceremonial uses. Examples of areas set aside for such a purpose are the Rharian (or Rarian) Plain near Eleusis, dedicated to Demeter, and the Sacred Field ceremonially tilled every spring by the Chinese emperors. Mesopotamian cylinder-seals display the ploughman garbed as a priest; or they show the plough in association with astral symbols or being offered to a seated god or goddess of agriculture (FIGS. 2-3). Again, a Cypriote clay model of a ploughing scene from the Early Bronze Age, during the third millennium B.C., associates the plough

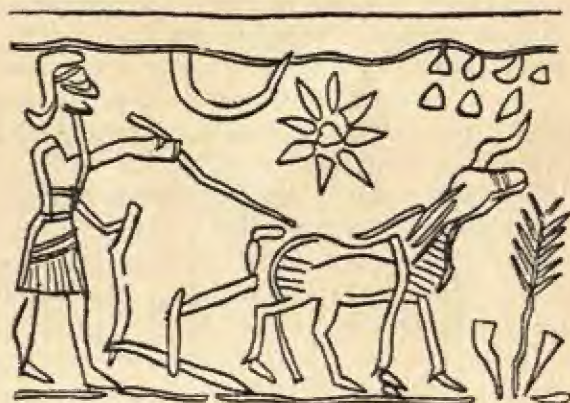


FIG. 3. ANCIENT MESOPOTAMIAN PLOUGHING SCENE
(After Ward, 'Seal Cylinders', p. 132, no. 379)

with those cults of the Divine Mother and the Sacred Bull once so widely diffused over the Near East.⁸ In many lands, too, the initial ploughing of the year has been a solemn religious observance conducted in person by a priestly ruler; such, for example, was the case in China until less than a generation ago.

The earliest method of attaching cattle to the plough seems to have been by means of ropes made fast to their horns—the latter themselves magical symbols of great potency; both yoke and plough-beam appear to have been later developments. No doubt human and animal traction were employed in conjunction for a time. This

⁸ *Illustr. London News*, Dec. 10, 1932, pp. 928 ff., and *Man*, Aug., 1933, no. 134. For early contacts of Cyprus with the mainland of Anatolia and Syria, see Sir Arthur J. Evans, *Scripta Minoa*, 1909, p. 68.

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continued to be the case in ceremonial traction in Egypt down to late Dynastic times, and it is still the practice in certain backward regions.⁹ Only through experience could men have discovered that, under proper guidance, oxen may be trained to draw the plough unaided.

We are as yet scarcely in a position to determine just when and where the traction-plough first appeared. That its evolution should have occurred independently in more than one area is improbable in the extreme ; for it involves the co-ordination of far too many culture-elements. Moreover all the available historical evidence is opposed to such a view. Once the idea of using animals for drawing the plough had been grasped, however, its secular advantages assumed increasingly greater preponderance over its religious aspects, and its wide diffusion became inevitable. In many lands, in place of being associated with the introduction of any given form of plough, animal traction seems often to have been adapted to already existing agricultural implements of either the foot-plough or the man-drawn type.

Recently it has been claimed that northern Europe—more specifically, the Nordic province—was the birthplace of the traction-plough. This claim we shall discuss later. Credit for its invention has also been proposed for the valleys both of the Nile and of the Euphrates. Possibly its evolution actually began in Upper Mesopotamia or North Syria during late prehistoric times, when those regions enjoyed a greater rainfall than they do today.¹⁰ The abundance of remains of human habitation in many parts of the Near East which are now arid proves that at no very distant date, geologically speaking, that region possessed a far higher degree of humidity than now.

The first irrefragable proof of the use of the traction-plough anywhere is probably that found in an archaic Sumerian seal of about 3500 B.C., from the Royal Cemetery at Ur.¹¹ As the plough here shown is already as well developed in certain respects as its descendant of a thousand years later, we must postulate for it a long previous period of evolution. The actual beginnings of this process must go

⁹ For a recent instance see Major J. Biddulph, *Tribes of the Hindoo Koosh*, 1880, p. 128.

¹⁰ See Harold J. Peake and H. J. Fleure, *The Steppe and the Sown*, 1928, p. 7.

¹¹ For this citation I am indebted to Dr Leon Legrain, who tells me that the dating is still not quite certain. See *Ur Excavations* (Joint Exped. British Mus. and Univ. of Pennsylvania), II, 'The Royal Cemetery', p. 336, no. 12, and plate 192, no. 12.

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back at least as far as the fifth millennium B.C. or even before. The Uruk phase of prehistoric Babylonian civilization, commencing around 4000 B.C., perhaps as an intrusion from the northwest,¹² already employed animal traction for wheeled vehicles, and possibly in agriculture also, although this by no means necessarily follows. In ancient Egypt, for example, the ox-drawn plough long preceded wheeled vehicles, while in China the exact reverse was the case.

The early Mesopotamian plough is most often shown with two handles or stilts, and, save apparently in ritual ploughing,¹³ the means of traction had progressed far beyond the primitive rope attached directly to the animals' horns. In some instances, even, we find depicted on the seals what seems to be a true neck-yoke, with bows or loops encircling the animals' throats.¹⁴ There was no slade or sole, but merely a simple point. The plough-beam was of two pieces, joined together and sometimes displaying a double curve shaped like the sound-holes in a violin. Beams of this sort survive in the Near East to this day.¹⁵

The Babylonian plough seems to have undergone comparatively little change in form during the historical period. But by the latter half of the second millennium B.C., and perhaps much earlier, there was sometimes attached to it a 'seeder'—an upright tube open at both ends, through which an attendant dropped the seed-corn as the ploughing went on.¹⁶ This apparatus appears also on Assyrian ploughs; representations occur on the walls of Sargon's palace at Khorsabad¹⁷ and on monuments of Sennacherib and Esarhaddon.¹⁸ Somewhat similar features shown on seals are interpreted as representing a man pushing down the plough-point with a stick; but perhaps in reality

¹² Dr E. A. Speiser, 'The Ethnic Background of the Early Civilizations of the Near East', *Amer. Journ. Archaeol.*, 1933, p. 465.

¹³ Cf. FIG. 5, representing a late Cassite ploughing scene, obviously ritual in character; the difference in the position of the animals' heads emphasizes the absence of a yoke.

¹⁴ W. B. Ward, *The Seal Cylinders of Western Asia*, 1910, p. 132, nos. 369, 371.

¹⁵ For a modern instance see *Festschrift: publication d'hommage offerte au P. W. Schmidt*, 1928: Paul Leser, 'Westöstliche Landwirtschaft', p. 434, fig. 32.

¹⁶ See FIG. 5, p. 270.

¹⁷ Leser, *Entstehung*, p. 247 and note 53. Ploughshares were among the iron objects found in Sargon's palace. Some are now in the Louvre.

¹⁸ For an example from a monument of Esarhaddon, cf. O. T. Pinches, *The Old Testament in the Light of the Historical Records of Assyria and Babylonia*, 1902, plate XIII, opp. p. 288.

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what are intended are 'seeders'.¹⁹ Little if any evidence exists for the very early use of metal shares in Mesopotamia; and indeed it is unlikely that such were ever regularly employed anywhere before iron came into general use.²⁰

That cattle were the only animals attached to the plough by the ancient Babylonians seems clear. It has been asserted that on one very early carving a man is shown ploughing with an antelope; however nothing in the way of a plough is depicted here, and what we have is in reality a hunting scene.²¹

We are far better informed in regard to the ancient Egyptian plough, of which we have so many representations, from the IIIrd Dynasty onward.²² It displays in general a more archaic aspect than the Mesopotamian plough; but like the latter it usually has two handles, at first very short. In the earliest reliefs the Egyptian plough is often attached to the draught animals simply by a rope tied to their horns; and even in later times, at any rate in ritual traction, a yoke is frequently absent (FIG. 4). When it does occur under the Old and Middle Kingdoms, it is of the most primitive description—merely a bar of wood lashed crosswise to the animals' horns. Although hornless cattle were known to the ancient Egyptians they seem never to have been used in ploughing.²³ Where in place of a rope a plough-beam is shown, it is usually short and always straight and displays none of the elaboration of Babylonian examples.

The use of a cross-tie of twisted and doubled thongs or cords, binding the beam to the lower part of the plough, near the point, arose quite early, but only became general towards the beginning of the XIIIth Dynasty; later still it was replaced by a cross-brace, apparently of wood. The Egyptians seem to have armed their ploughs with flint

¹⁹ Ward, *op. cit.*, pp. 132, 133.

²⁰ For plough irons at Gerar about the 12th century B.C. cf. ANTIQUITY, 1936: G. A. Wainwright, 'The Coming of Iron', p. 19.

²¹ For the scene thus wrongly explained, see H. V. Hilprecht, *The Babylonian Expedition of the University of Pennsylvania*, 1893, vol. 1, plate xvi, p. 88; also Ward, *op. cit.*, p. 30, no. 55. Dr Legrain has confirmed my own suspicions in regard to the true purport of this carving.

²² On IIIrd Dynasty ploughs, see W. M. Flinders Petrie, *Medum*, 1892, 'Tomb of Nefermat'.

²³ Heinrich Schaefer, *Priestergräber . . . vom Totentempel des Ne-user-ré*, 1908, p. 17.

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during most of the Dynastic Period ;²⁴ although there is some evidence that they were beginning to employ metal shares before its close.²⁵

Save in minor details, the Egyptian plough underwent little evolution during Old and Middle Kingdom times. It was only after the Hyksos conquest—when, incidentally, wheeled vehicles first appeared in Egypt—that changes in the plough became more marked. It then grew progressively heavier and its stilts longer, while true neck-yokes, perhaps introduced from Asia, began to replace the archaic bars of wood tied athwart the animals' horns.²⁶ In some of the later Dynastic Egyptian ploughs there appears to be a tendency to develop a slide or



FIG. 4. LATE DYNASTIC EGYPTIAN RITUAL TRACTION ILLUSTRATING METHOD OF ATTACHMENT WITHOUT EITHER YOKE OR POLE
(After Wilkinson, *Ancient Egyptians*, 1878, III, pl. op. p. 449)

sole—a feature apparently already known in the Aegean area ; possibly its appearance in Egypt was connected in some way with those raids by the 'Sea Peoples', then going on. Something which has very much the look of a coulter (not necessarily of metal) also appears in a few representations of ploughs on New Kingdom monuments, and at least one surviving example has actually been reported.²⁷

²⁴ Cf. Fernande Hartmann, *L'Agriculture dans l'ancienne Égypte*, 1923, p. 79, fig. 10; also Jacques de Morgan, *Prehistoric Man*, 1924, p. 172. ²⁵ See Schaefer, *op. cit.* p. 168.

²⁶ Cf. *ANTIQUITY*, 1934, IX, 456, referring to the Papyrus of Kumara. The ox-carts of the Asiatic foes of Rameses III have neck-yokes.

²⁷ Cf. M. C. Burkitt, *Our Early Ancestors*, 1926, p. 54, note 1. On the other hand, Dr. E. A. Speiser informs me that the mention of 'coulters' in 1 Sam. XII, 20 and 21, is an anachronism due to a mistranslation.

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Instances of the use of human instead of animal traction in ploughing are rare. An XVIIIth Dynasty relief (FIG. 6) shows a plough of the usual type drawn by four youths and guided by an older man who is closely followed by a sower.²⁸ The form of the plough here is wrongly reproduced by Lepsius²⁹ and by those who have copied him.

We know little as yet regarding the first appearance of the traction-plough in Asia Minor. As we have seen, the eastern portion of that area was perhaps not far removed from the original centre of diffusion. A high degree of civilization existed in the region west of the Taurus by the third millennium before our era³⁰, when the plough was already

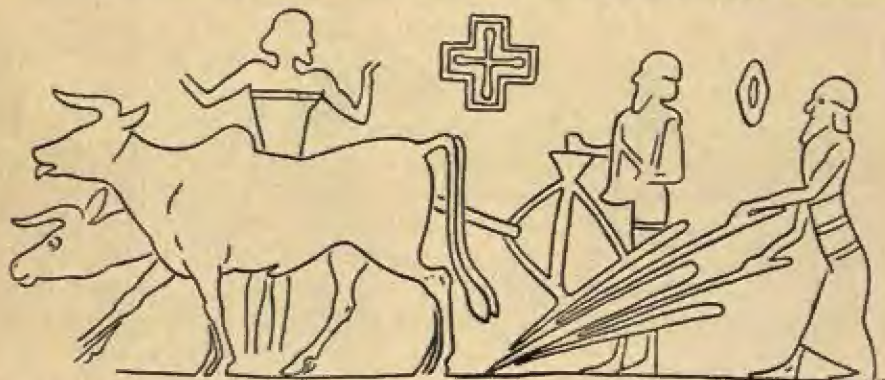


FIG. 5. PLOUGHING SCENE ON LATE CASSITE SEAL-IMPRESSION
(From University of Pennsylvania Museum Journal, 1920, 1, 4)

known in Egypt and Cyprus. That it was used in Asia Minor as early as it was in the latter of these two regions at least, we may regard as certain. The peninsula became indeed in the course of time a secondary area of diffusion. For more detailed information we shall have to await further archaeological research.

It was perhaps from Asia Minor that the traction-plough reached Crete. For the form used there during Minoan times, as it is depicted in the hieroglyphic script, shows no resemblance to those ordinarily used either in Mesopotamia or in Egypt. Unlike these, it has but a single

²⁸ J. J. Tylor and F. Ll. Griffith, *The Tomb of Paheri at El Kab* (Egypt Explor. Fund, 11th Mem., London, 1894), vol. 1, p. 13 and plate III.

²⁹ Richard Lepsius, *Denkmäler aus Aegyptien und Aethiopien*, vol. III, plate 10-a.

³⁰ Sidney Smith, *History of Assyria to 1000 B.C.*, 1928, pp. 164 ff.

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handle, with a transverse hand-grip, and a well developed slade in one piece with the beam. Both these characters the ancient Cretan plough shares with examples found in peat-bogs in northern Europe ; and it seems also to have been nearly related to the pre-classical Greek plough as well as to types found in the eastern Mediterranean area today.³¹ It displays a distinctly more developed shape than do the ploughs shown in the Ligurian and Swedish petroglyphs which we shall discuss later.



FIG. 6. EGYPTIAN XVIIIth DYNASTY EXAMPLE OF HUMAN TRACTION IN PLOUGHING
(From Tylor and Griffith, *Pakari*, vol. 1, pl. 3)

There appears to be no conclusive evidence for the use of the ox-drawn plough in Europe during the Neolithic period,³² although some form of foot-plough was pretty surely known and perhaps human traction was also employed. However Mesopotamia was in contact from very early times with the steppe-lands north of the Mountain Zone,³³ and it was perhaps in this way that the idea of employing animal traction in agriculture reached that Black Earth region destined one

³¹ For hieroglyphic representations of the ancient Cretan plough, cf. Evans, *Scripta Minoa*, pp. 190 ff, and fig. 102 (Table XIII), no. 27.

³² V. Gordon Childe, *The Bronze Age*, 1930, p. 49 ; also Leser, *Entstehung*, p. 550.

³³ Childe, *The Aryans*, 1926, pp. 185 ff.

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day to become the granary of Athens. From southern Russia—or perhaps from Asia Minor, though the latter seems on the whole the less likely source—the use of the plough spread to the Danube valley. It may possibly have appeared there during the latter half of the third millennium before our era; for among remains of the culture known as Danubian II, which seems to have arisen about that time, there have been found large stone implements interpreted as ploughshares.³⁴ The latter may, it is true, have belonged to man-drawn implements; but in any case it seems fairly certain that the Danube basin knew the true traction-plough by the beginning of the second millennium B.C.

It was perhaps both through the Balkans and either directly from Asia Minor or else through Crete that the use of the ox-drawn plough spread to Greece. For Hesiod speaks of two types as in use concurrently in his day.³⁵ Of these, one, very simple in construction, may possibly have been derived from Central Europe; while the other, considerably more developed, points rather to contacts with the Aegean area or possibly with regions even farther to the east. Both forms have single handles and also slades, but apparently not metal shares. Our earliest knowledge of the ancient Greek plough we owe almost entirely to Homer and Hesiod and, a little later, to the vase-painters (FIG. 7).

In Italy there seems to have been little in the way of true agriculture during Neolithic times.³⁶ Not until the Bronze Age is the traction-plough found there. Perhaps it was introduced by the Terremare people—Dr Randall MacIver's 'Proto-Italici'—invaders from the northeast who appeared in Upper Italy somewhere around 1700 B.C., bringing with them a highly developed agriculture.³⁷ Our earliest concrete evidence for the plough in the peninsula is probably that found in certain rock-drawings in the Ligurian Alps.³⁸ These are generally believed to date from the second millennium before our era—during the period, that is to say, when the influence of the Terremaricoli was making itself felt in northern Italy. It seems unlikely that these petroglyphs can have been the handiwork of the native

³⁴ Regarding the intrusive elements, apparently deriving from southern Russia, which appear in Danubian II, cf. Childe, *Dawn of European Civilization*, 1925, p. 177; on p. 179 of the same work, Danubian II is dated c. 2500-2200 B.C.

³⁵ *Works and Days*, pp. 427-436.

³⁶ Randall MacIver, *Italy before the Romans*, 1928, p. 41.

³⁷ Randall MacIver, *op. cit.*, pp. 35, 36.

³⁸ For an account of these see M. C. Burkitt, 'Rock Carvings in the Italian Alps', *ANTIQUITY*, 1929, III, 155-164.

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Ligures, whom Posidonius describes in the first century B.C. as 'wild huntsmen, almost ignorant of agriculture'.

The plough shown here was composed of two pieces, a combined handle and point and a beam. So far as our evidence goes, this was the only form in use in Italy for several centuries.³⁹ It was apparently not until the earlier half of the first millennium B.C. that there was introduced an improved form, having a slade, and comparable in other respects also to the more developed type mentioned by Hesiod.⁴⁰ Its arrival in the peninsula was pretty surely connected with the movements which led to the settlement of the Etruscans northwest of the Tiber and of the Greeks in Magna Graecia.



FIG. 7. ANCIENT GREEK PLOUGH
(From a vase-painting by Nikosthenes)

During the Roman period agricultural implements of all kinds underwent a marked development. Among the new devices then adopted seem to have been mould-boards, a wheeled forecarriage, and definitely the coulter.⁴¹ These improvements were perhaps the work not alone of the peoples of Italy but also of some of those dwelling beyond the Alps. In any case, they were diffused over a large part of western and central Europe, where their evidences are visible throughout the Middle Ages and even down to our own times (*cf.* FIG. 8).

³⁹ This form seems to have been the forerunner of the Roman *aratrum simplex*, comparable to Hesiod's αὐτόγυνον ἄροτρον.

⁴⁰ The πεηκτὸν ἄροτρον.

⁴¹ See G. W. B. Huntingford, 'Ancient Agriculture', *ANTIQUITY*, 1932, VI, 328.

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That the peoples of the Iberian Peninsula had the traction-plough before the Roman occupation is certain ; but as to the date of its first appearance there we are quite in the dark. It may have been introduced there during the Celtic invasions,⁴² or, even earlier, from northern Italy, between which and Spain we know that there were contacts. The Celtiberians had a two-piece plough without a slade and in general resembling that shown in the Ligurian petroglyphs ;⁴³ while some of the more archaic Spanish and Portuguese ploughs used down to recent times recall forms found in central and even eastern Europe. The Greeks and Carthaginians can of course scarcely have failed to bring with them improved eastern Mediterranean types.

Regarding the presence of the plough in North Africa (west of Egypt) before the former half of the first millennium B.C., our knowledge is slight. In early historical times the Libyans seem on the whole to have been pastoral ;⁴⁴ yet they grew cereals in the time of Merneptah, late in the 13th century B.C.⁴⁵ Among the modern Berbers there has been noted an agricultural complex, apparently of great age, including along with many magical practices the use of the ox-drawn plough, regarded as sacred.⁴⁶ Agriculture in North Africa must have received a great stimulus from the planting of the Phoenician and Greek colonies along the littoral. The Carthaginians in particular developed it to a very high pitch, as we are told by more than one ancient writer ; Columella, for example, in the first century A.D., even calls Mago ' the father of husbandry.'⁴⁷

It was most probably during the Late Bronze Age that the ox-drawn plough reached western Europe—say somewhere around the beginning of the first millennium B.C. During the same period or very early in the Iron Age it seems to have appeared in Britain ;⁴⁸ although some have doubted its arrival there before the Roman conquest in the

⁴² For a brief discussion of these as they relate to Spain, see Georg Kraft, ' The Origin of the Kelts ', *ANTIQUITY*, 1929, III, 33 *passim*.

⁴³ For a representation of a Celtiberian plough on a coin, see Daremberg-Saglio, *Dict. des Antiq.*, I, 354, fig. 434.

⁴⁴ *Cambr. Anc. Hist.*, I, 36.

⁴⁵ Oric Bates, *Eastern Libyans*, 1914, p. 98.

⁴⁶ C. S. Coons, *Tribes of the Rif* (Harvard African Studies, vol. IX, 1931), pp. 49 ff.

⁴⁷ *De re rustica*, I, I, 13.

⁴⁸ E. Cecil Curwen, ' Prehistoric Agriculture in Britain ', *ANTIQUITY*, 1927, I, 287.

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first century A.D.⁴⁹ That the earliest British plough resembled those shown in the Ligurian petroglyphs seems likely, while its ultimate derivation from the Danube basin hardly admits of a doubt. After the Saxon conquest the older and lighter Celtic plough was in a measure displaced by a heavier one, drawn by as many as four yoke of oxen—a type perhaps devised in South Germany during the early centuries of our era.⁵⁰

The same form of plough as that first found in northern Italy and in all likelihood in western Europe also reached the Baltic area. An article has recently appeared undertaking to prove, through a resort to pollen analysis, that a traction-plough found in a peat-bog at Walle, in East Friesland, belongs to Neolithic times—according to this author, as long ago as 3500 B.C.⁵¹ This would carry us back as far as the first recorded appearance of the plough in ancient Sumer, and something like a round millennium before the earliest probable date of its arrival in Central Europe. The writer of the above paper further points out that the Walle plough is similar to those shown on the Certosa situla and on certain Greek vases—the implication of course being that the type persisted practically unchanged for some three thousand years, during which it diffused itself slowly southward from the Baltic to the Mediterranean.

Any such dating as that claimed for the Walle plough is, on a *priori* grounds alone, most improbable—unless we are prepared to admit for the prehistoric Germans a wholly independent focus of culture development of their own, somewhere in the Baltic area. Moreover, valuable as is pollen analysis for some purposes, any effort to establish by that method alone the age of intrusive objects (particularly heavy ones) found in peat-bogs is, to say the least, extremely hazardous. Finally, the Walle plough seems crudely constructed rather than truly primitive in form—which is by no means the same thing. We shall need much more convincing evidence than any as yet adduced before we can accept the north of Europe, whether in the fourth millennium B.C. or at any other time, as the birthplace of the traction-plough.

⁴⁹ Harold J. Peake, *Early Steps in Human Progress*, p. 122.

⁵⁰ Cf. Curwen, *l.c.*, *ANTIQUITY*, 1927, 1, 280 ff.

⁵¹ *Natur und Volk*, vol. LXIV, 1934: Dr. Jacob-Friesen, 'Die älteste Pflug der Welt', pp. 83-91. See also *Upplands Fornminnesförenings Tidskrift*, vol. XLV, no. 1, pp. 1-19, Ragner Jirlow, 'Plogkroken från Svarvarbo och några förhistoriske plogar' (with summary in German). For calling my attention to the latter paper, I am indebted to the Editor.

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That the latter was known, however, in the Baltic area during the Bronze Age or at latest early in that of Iron is certain. Depicted in the well known rock-drawings of Bohuslän, in southern Sweden, are ploughs of two types. One (FIG. 9), of two pieces only, is closely similar to the form shown in the Ligurian petroglyphs. The other is like it save for the addition of a third member in the shape of a cross-brace identical in function to that found in the later Dynastic Egyptian ploughs.

One writer calls these Swedish petroglyphs 'incontestably of the Early Bronze Age'.⁵² Others regard them as belonging to the Middle Bronze Age. Sophus Müller says merely that they are 'centuries later' than their Ligurian analogues.⁵³ The same scholar, while discussing a plough found in a bog at Døstrop, in Jutland,⁵⁴ strikingly like the simpler of the two types seen at Bohuslän, states that it is either of the Late Bronze Age or early in that of Iron.⁵⁵ In any case it seems clear that the ox-drawn plough was known in Sweden by the middle of the first millennium B.C. or possibly a few centuries earlier.

The Swedish 'plough-crook', long drawn by hand and only in comparatively recent times by mares or cows, closely resembled the two-piece plough at Bohuslän. Like the latter, it consisted of only two members—a combined handle and point and a beam or pole.⁵⁶ In Sweden as elsewhere, what seems to have been the earlier method of traction, by human power, long survived side by side with that which depended upon the use of animals.

The unmistakable resemblance between the ploughs shown in the Ligurian and in the Swedish petroglyphs is best explained on the assumption of derivation from a common source—almost certainly the valley of the Danube.

Whether the Indus civilization had the ox-drawn plough is as yet uncertain.⁵⁷ Northwestern India was however in active commercial communication with Babylonia at a time when the latter had already

⁵² *Natur und Volk*, Jacob-Friesen, l.c., p. 84.

⁵³ Sophus Müller, *Urgeschichte Europas*, p. 147.

⁵⁴ The Døstrop plough is shown in *Méms. Soc. Royale des Antiquaires du Nord*, 1902, p. 21, fig. 1, in connexion with the article by Sophus Müller cited in footnote 2.

⁵⁵ The Scandinavian Iron Age appears to have begun not very far from 600 B.C.

⁵⁶ R. U. Sayce, *Primitive Arts and Crafts*, 1933, p. 115.

⁵⁷ Sir John Marshall, *Mohenjo-Daro and the Indus Civilization*, 1931, I, 27; II, 456 and note 1.

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long known the plough ; hence its contemporary use in the valley of the Indus seems at least possible. At all events it was common there in Vedic times ;⁵⁸ and it appears to have spread over much if not all of northern India before the middle of the first millennium B.C.

The ancient Indian plough (FIG. 10) reached Burma and southern India in time, and it was carried during the earlier centuries of our era to portions of the Indo-Chinese peninsula and to certain of the East Indian islands, notably to Java. The form still used in Bali, with its straight beam and its lack even of a cross-brace, wears an especially archaic look ; while the Siamese rice-plough betrays strong Indian affinities.

In Central Asia not enough archaeological work has been done as yet to provide us with any clue as to the date of the first appearance of the traction-plough in that region. Forms found there today, however, resemble those used in the Near East—a fact which betokens contacts of some sort. These have of course been constant since the period of Muhammadan expansion north and northeast of the Mountain Zone. That they were going on far earlier is no less certain.

Common wheat (*Triticum vulgare*) and barley (*Hordeum distichum*), regarded by most authorities as of southern or southwestern Asiatic origin, have been reported from a site in Russian Turkestan probably of the third millennium B.C.⁵⁹ The undivided Indo-Iranians, perhaps once seated in the same general region, knew some form of plough.⁶⁰ Coming down to Assyrian times, the representation of a two-humped or 'Bactrian' camel on the Black Obelisk of Shalmaneser (9th century B.C.) pretty clearly indicates the existence of relations of some sort with the lands north of the Zagros and the Hindu Kush. The *Arimaspeia* of Aristæas of Proconnesos betrays an intimate knowledge of Central Asia.⁶¹ During the latter half of the sixth century B.C., both Cyrus and Darius pushed their conquests far to the northeast. Quite recently there have been found in Chinese Turkestan Greek coins of the third century

⁵⁸ *Cambr. Hist. India*, I, 99. For additional information on this matter I am indebted to Dr. Franklin Edgerton, of Yale University.

⁵⁹ Raphael Pumpelly, *Explorations in Turkestan*, 1908, II, 472.

Dr. Hubert Schmidt's dating (*id.*, I, 486) of the earlier settlements at Anau as being of the third millennium B.C. appears to have received general acceptance.

⁶⁰ Peake and Fleure, *The Horse and the Sword*, 1933, p. 138. That the Indo-Europeans as a whole had the plough prior to their dispersion seems less certain.

⁶¹ For a discussion of this question see G. F. Hudson, *Europe and China*, 1931.

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B.C., from the kingdom of the Bosphorus.⁶² Thus all in all it seems evident that so far as opportunities went, the traction-plough might have reached Central Asiatic regions at almost any time during the first two millennia and more before our era.

This possibility is further strengthened by the fact that the varieties of wheat grown in Central Asia and even in China are identical with those of the Near East.⁶³ Wheat (*T. vulgare* and perhaps also *T. compactum*) had reached China by the middle of the second millennium B.C., as is shown by nearly contemporary inscriptions. The same seems also to have been true of barley (probably *H. distichum*). These cereals were not, however, accompanied by the traction-plough, although the Chinese of that day employed both horses and bullocks to draw wheeled vehicles. The usual agricultural implements used by the peasantry of the Chinese Bronze Age⁶⁴ were various forms of the foot-plough, used by men working in pairs. So typical was this practice, indeed, that the ideograph meaning 'a pair' (of any sort) was formed of two *lei*—implements of the foot-plough class—depicted side by side. Further, the pictograph representing a single *lei* became the determinative or 'signific' of a large class of characters having to do with agriculture. It seems likely, in the light both of numerous existing survivals and of certain statements in the ancient Chinese texts, that human traction also was once widely employed in Eastern Asia.

There is no mention of the ox-drawn plough in China during the earlier historical period. This might be taken merely for negative evidence were it not that we find the definite statement that it was introduced 'about the middle of the Epoch of the Warring States' (403-255 B.C.)—that is to say, sometime in the latter half of the fourth century before our era.⁶⁵

⁶² Dr. Erich Diehl, 'Bosporanische Münzen aus der Dschungarei', *Blätter für Münzfreunde*, 1923, pp. 441-9.

⁶³ *Zeitschr. für induktive Abstammungs- und Vererbungslehre*, Suppl. 1, Leipzig, 1928: N. I. Vavilov, 'Geographische Genzentren unserer Kulturpflanzen', p. 352 and map on p. 353.

For a discussion of Vavilov's views, see A. E. Watkins, 'The Origin of Cultivated Plants', *ANTIQUITY*, 1933, VII, 73-80.

⁶⁴ The Chinese Bronze Age lasted from the former half of the second millennium until the latter part of the first before our era.

⁶⁵ For this citation I am indebted to Dr. A. W. Hummel.

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This dating is significant. For it was precisely then that the feudal state of Ch'in⁶⁶—corresponding roughly to the present northwestern province of Shensi—annexed the eastern termini of both the two great land-routes linking China with the Occident.⁶⁷ Of these, one was of course that traversing Central Asia; while the other connected western China, by way of Burma, with the valley of the Ganges. Now Ch'in was noted not only for her devotion to war but also for her encouragement of agriculture and her receptivity toward new ideas. She, more than any other Chinese state of that day, would have been likely to welcome and adopt the traction-plough.

By which of the two routes just mentioned knowledge of the plough made its way to China, we cannot say. Possibly it may have spread to the basin of the Huang Ho (the Yellow River) through Central Asia; and to that of the Yangtze from Farther India, along the same path as that taken in prehistoric times by rice, the domestic fowl, and other culture-elements.⁶⁸ In any case, once it had appeared, it seems to have spread within a century or two over most of northern and central China Proper.

It is noteworthy that when the need arose for a written symbol to denote the new implement, the determinative chosen was not that in regular use with ideographs having to do with agriculture (see p. 278) but the character for 'ox'; as though in the minds of the Chinese scribes the significant thing about the plough was not so much its use in tillage as its association with animal traction.

The Far Eastern plough of today is frequently (although by no means invariably) drawn by one or sometimes two animals harnessed with rope traces to a swingle-tree pivoting on the end of a short and usually much curved plough-beam (FIGS. 11, 12). Whether this method of attachment is really ancient in China is uncertain; but we know from the evidence of old paintings that it was in use at least as far back as the 12th century A.D.⁶⁹

⁶⁶ Ch'in was the state destined about a century later to establish the first centralized and bureaucratic Chinese empire; from its name comes ours of 'China'.

⁶⁷ The sea-route to the Far East only came into use around or perhaps very shortly before our era, when Western ships began to appear in southern Chinese waters.

⁶⁸ The importance of this 'back-door' to China has never received the recognition which it deserves; yet through it have come many important elements of the Chinese civilization, from prehistoric times down to the present day.

⁶⁹ Dr. A. W. Hummel has very kindly brought to my attention Chinese paintings of that period in the Library of Congress which illustrate the point involved.

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North of China, in Mongolia, the sedentary 'peasant' type of culture which occupied that area during Neolithic times had given place, apparently by the middle of the first millennium B.C., to a pastoral nomadism not unlike that found there today. In this, the plough could naturally play little part. In other directions—east, west, and south—the spread of the traction-plough from China as a secondary centre of diffusion went on apace. Here the Chinese accounts are of particular value for the light that they throw upon the workings of a process which in the lands of the Occident had gone on largely unrecorded.

Thus it was from China that the plough reached eastern Tibet—according to a late source, in the early centuries of the Christian Era; in the central and western portions of that country, as we might expect, Indian contacts are more apparent.

From the Yangtze valley the plough travelled to what are now southern China and French Indo-China, perhaps just before the commencement of our era. From northern China, around the same period, the plough reached southern Manchuria and Korea. Either from the latter country or directly from China it was carried, about the fifth or sixth century A.D., to the Japanese islands. But there it never acquired first-rate importance, the peasantry placing dependence rather upon hoes, mattocks, and implements of the foot-plough and man-drawn classes.

From China, again, the traction-plough travelled to the East Indian archipelago, occupation of which it shared with the type from India. Generally speaking, the line of demarcation between the two fields of cultural influence extends, though with many interpenetrations, from east-central Tibet southward through the Indo-Chinese peninsula, thence swinging off in a southeasterly direction into Indonesia. Formosa, the Philippines, and North Borneo remain on the Chinese side, while Sumatra, Java, and their nearer neighbours fall within the Indian sphere. It seems to have been only in this quarter of the globe that the traction-plough in its earlier career penetrated, albeit very slightly, south of the equator.

Let us now summarize briefly the results of our inquiry. These seem to make it fairly clear that the traction-plough appears at progressively later dates the farther we travel, in whatever direction, from the region where we find the earliest indications of its use—that is to say, in the ancient Near East. Moreover its extension, so far as we have been able to trace it through written records, has invariably

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been due to diffusion—to culture-borrowing, never to repeated independent invention. There is every reason to believe that the same holds true for prehistoric times also. These facts go a long way toward accounting for that essential unity underlying the agricultural systems upon which have been based the great civilizations of the Old World.⁷⁰

⁷⁰ On this unity see Leser, *Entstehung*, p. 545; also his paper in *Festschrift Schmidt* cited in footnote 15.

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First Report on Excavations in the Northern Transvaal

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SO many local and overseas enquiries have been received that the Archaeological Committee of the University of Pretoria feels that a preliminary account of the excavations being conducted at Mapungubwe is desirable. I have accordingly been authorized to publish the following statement.

Toward the end of 1932 the attention of Professor Leo Fouché—then Professor of History at the University of Pretoria and now at the University of the Witwatersrand—was drawn to the discovery of finely wrought gold ornaments and imported glass beads from an ancient deposit on a farm in the Zoutpansberg District of the Northern Transvaal, Union of South Africa. Recognizing the archaeological potentialities of the site, Professor Fouché immediately set machinery in motion to secure it from damage by treasure-seekers and vandals. With a view to protection and thorough archaeological investigation, and inspired by Professor Fouché's enthusiasm, the Government of the Union of South Africa very magnanimously supported an appeal from the University of Pretoria by acquiring the farm and giving the University generous financial assistance for investigations. Considerable help was also given by the Municipality of Pretoria and by certain private donors, and finally arrangements were made for the University to have the exclusive right to investigate over a period of five years; the control of field-work to be in the hands of the Committee.

Since the discovery was first announced, the site has been systematically investigated by archaeologists and ethnologists, and valuable data secured. The most spectacular finds include hoards of gold beads and ornaments, masses of coloured glass beads from the Near and (?) Middle East, Chinese porcelain, ivory, copper, bronze, iron, and a great mass of pottery, and human, faunal and vegetable remains.

The beads show close affinities with those recovered from Zimbabwe and other ruins in Rhodesia, and it is impossible to escape

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the conclusion that there flourished in the Northern Transvaal a material culture that was influenced by factors that left their mark over a wide area in Rhodesia in medieval days. As the investigations are still in progress, it is obviously impossible to draw final conclusions, but it is hoped that the reports of the various investigators and experts who were consulted (South African and European), will shortly appear in book form. When published, this work will no doubt very materially increase our knowledge of the medieval history of South Africa. It is hoped that the first volume, dealing exclusively with the work of the first two seasons, will soon be in the printer's hands.

The scene of the original discovery and the site on which work has been concentrated is on the summit of an almost impregnable hill, an acropolis-like natural fortress known as Mapungubwe, on Greefswald farm near the junction of the Shashi and Limpopo rivers ($29^{\circ}20'$ E, $22^{\circ}30'$ S). The farm is about 160 miles southwest of Zimbabwe and just over 50 miles due west of Messina, where there are extensive remains of pre-European copper-mining.

Mapungubwe itself is one of several spectacular sand-stone formations that rise independently and almost perpendicularly for 200 and more feet from a valley that feeds the Limpopo from the south. It is fish-like in plan, about 300 yards long and 60 or so in width across the minor axis. From whatever direction one approaches from the valley, one mounts a steep gradient until reaching the foot of a cliff that rises sheer for about 100 feet. But for a single natural and narrow chasm, known as the 'Western Ascent', this cliff is inaccessible—except where artificial aids are employed. The ancients who lived on the summit improved this chasm or 'chimney' by cutting notches and holes in the opposing walls of rock apparently as rests for the ends of rungs, and presumably reached the top by climbing an improvised ladder. In somewhat similar fashion they also prepared other ascents, notably the Eastern Ascent, and the Southern or Mahobi Ascent, only in these the notches were 'grips', not rung-rests.

Remains of dry-stone walling in the form of breast works are to be seen at the top of every ascent, and as no ascents could be mounted except in Indian-file, the protection of the top against attack or unlawful entry was a simple and effective undertaking.

Originally the top was rugged and irregular, but the irregularities were overcome by an artificial infilling of earth laboriously carried up from the valley below. Where necessary, dry-stone retaining walls were built round the sides (every stone having to be carried to the top),

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until, with the passage of time, practically the entire summit was roughly levelled and terraced to provide foundations and floors for huts, granaries, etc.

In time more and more material (much of which is pure midden) accumulated, until the amount thus laboriously transported to the top must have amounted to about 30,000 tons as, at a very conservative estimate, about 25,000 tons still remain. This accumulation of material on the summit was obviously not the work of one generation, but many successive generations. The loss of material from the top is traceable to extensive taluses and other deposits round the foot of the cliff, where debris was tipped or fell as a result of a collapsed retaining wall. The ancients lacked both the material and the skill to erect effective retaining walls where these were surcharged, as was obviously the case at Mapungubwe.

The deposits round the foot of the cliff contain all the elements found on the summit (gold, glass, beads, ivory and bone awls, masses of potsherds, iron and copper weapons and ornaments, animal bones, etc.), thus establishing beyond doubt that the accumulations along the base of the cliff are due not merely to tipping, but also to erosion from the top after the collapse of retaining walls. It is extremely improbable that the ancients threw gold and glass beads over the edge, and as these are found in the taluses, it is obvious that the material was derived from the top by such a natural process, probably after the place was deserted.

After a preliminary and hurried visit by Professor Leo Fouché and a few companions immediately after the discovery, the first expedition went up in April 1933 to determine, if possible, if work on an extensive scale was warranted. It was led by Professor Fouché and included Professors D. E. Malan (anatomist and zoologist), Felix Tromp (chemist), van Riet Lowe (archaeologist and surveyor) and Mr D. Malan (commissariat).

Trenches and trial-pits were sunk at various points and in every instance the deposit was found to be an artificial accumulation from top to bottom—an accumulation of hearths, potsherds, bones, artificially consolidated ('cement') floors and platforms, in-fills of earth, stones and so on. Hut floors, retaining walls, and granary foundations were clearly traceable, and in various trial-holes throughout the deposit gold, copper, iron, imported glass beads, ivory and bone ornaments and tools were uncovered; hearths and floors were encountered, and masses of bones and potsherds. After a fortnight's exploratory work and the completion of a detailed tacheometrical survey of the summit,

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the expedition returned and recommended exhaustive exploitation by archaeologists, and also by ethnologists.

Funds had naturally to be raised and by means of generous State and private support, sufficient money was collected to equip and send up the necessary experts. Meanwhile an Archaeological Committee of the University of Pretoria was constituted to control expenditure, and procedure, and generally to be responsible both to the State and the Council of the University. The Committee included members drawn from the University and the public, with four nominees of the Department of the Interior.

The Archaeological Committee invited the well-known archaeologist Mr Neville Jones, to take charge of the 1934 expedition. Most ably assisted by Mr J. S. Schofield, who volunteered to assist Mr Jones, and Mr J. W. van Tonder, work was started in June 1934, and completion of the task was reported to the Committee in September 1934.

It is obviously impossible to anticipate the reports of these gentlemen at this stage, and all that need be said is that after having systematically excavated and examined over 1500 tons of material, their findings indicate complete homogeneity of culture from the beginning to the end of the period of occupation.

Meanwhile Professor G. P. Lestrade investigated the ethnological field. He collaborated most closely with Mr Neville Jones and collected information over an extensive area. His conclusions may briefly be summarized as follows: Mapungubwe was occupied by a Bantu-speaking people of mixed elements of Shona and Sotho origin; the former having come from the north—*i.e.* by Rhodesia, while the latter came from the west by Bechuanaland. These conclusions are borne out and strengthened by the findings of the other investigators, based on technological evidence.

When Messrs. Jones and Schofield left the site in the spring of 1934, Mr van Tonder was permitted by the Archaeological Committee to continue the work. He actually worked through the malarial season (summer) of 1934-35, and reaped a spectacular reward. His first discovery was a burial that contained about 70 ounces of finely wrought gold ornaments and a mass of imported beads. This rich find, which added materially to the knowledge previously gained, led to the discovery of a cemetery containing no less than 23 burials and further considerable quantities of gold, glass, ivory, copper, iron and bone ornaments and weapons (unfortunately much corroded) and several very beautiful earthenware bowls of a funerary type.

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The cemetery or 'Grave Area' as it is called, lies within a well defined area on the lower western slope immediately adjacent to the original discovery.

In almost every instance the body was interred in a flexed position on its side with no regard for orientation. Finely made and beautifully ornamented dish-like bowls were placed with the dead. The women were found with masses of metal anklets and bangles made of wire, principally iron, wound round fibre or sinew. Glass beads were occasionally used to ornament the bangles. In two instances the bodies were interred with considerable masses of gold and imported glass beads of various sizes and colours—white, black, blue, green, yellow, orange, red—and finely wrought and moulded gold-foil or plating used as coverings for a bowl, sculptures, etc. The plating was secured to the sculpture (? wood) by means of pure gold tacks that were driven and beaten into the plate before the whole was ornamented with simple geometrical figures of chevron, herring-bone and triangle forms similar to those used for decorating the pottery. The tacking of the plates was identical with that employed by the silversmiths of Dahomey.

Where the body was not flexed and lying on its side, usually right, the mode of burial seems to have been in a sitting or squatting posture. In one grave it was almost certainly buried in this position in a cavity, for when uncovered it was found to be complete but to have collapsed or pancaked. The skull was found on the pelvis with all the long bones alongside, the whole interspersed with masses of gold and glass beads. It was clearly not a case of dismemberment, but of collapse. It was from this particular grave that the gold content ornaments were taken, most of them being wire bangles. Tacks and gold-plating in scroll and boss form and a golden ferrule and a gold-plated handle suggest the existence of a staff-of-office that reflects the importance of the person buried.

Burials were also found where children had been interred in graves encircled by pots of various sizes and shapes.

As these burials belong to the culture represented by the various industries of the site, they are most important. Unfortunately the great mass of skeletal material uncovered was excessively friable and most of the skeletons crumbled to the touch, but fortunately sufficient material was recovered to enable a complete reconstruction to be made.

As a result of his preliminary examination of the faunal remains, Professor D. E. Malan has recognized the important fact that about 95 per cent. of the bones belong to domestic animals : cattle, sheep and

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probably goats. I say important because it is immediately established that the bearers of the Mapungubwe Culture were a pastoral people. They were also agriculturalists, for among the vegetable remains we have kaffir corn (millet), ground nuts, beans and a variety of melon, etc.

The pottery is extremely interesting and will be fully described by Mr Schofield in a special monograph. It need only be pointed out here that the mass of most typical pottery is reminiscent of certain forms that occur in the later occupation-layers at Zimbabwe, *i.e.* the period of occupation when all the foreign elements were introduced and gold was plentiful.

In June 1935, the Committee was fortunate in getting the help of Captain Guy Gardner, who had previously gained experience in archaeological research when he worked for some six months with Miss Caton-Thompson and his sister, Miss Elinor Gardner, in the Fayum. He was put in charge of the expedition, and with the continued assistance of Mr van Tonder he remained at Mapungubwe until the end of September 1935, when owing to the approach of the malarial season and largely influenced by an embarrassingly slender account, the Committee decided to close down for the season.

While Captain Gardner continued excavations in the main deposits on the summit of Mapungubwe, he also directed his attention to an adjacent site known as Bambandianalo—a site that was slightly explored by Messrs. Schofield and Neville Jones, who reported that the superficial remains found there belonged to the Mapungubwe Culture.

Several very interesting discoveries were made. In the first place a hut-floor littered with ivory chippings and objects was uncovered (at depth)—obviously the 'seat' of a craftsman. Two whole ivory bangles and several awl-like points were also found. The next interesting discovery was an old-hut-floor with a stone platform, masses of potsherds, a whirler and 148 polishing stones—the seat of a potter or potters.

The exploration of Bambandianalo—which is far from complete—has led Captain Gardner to certain striking conclusions. He inclines to the belief that the earliest occupants of the site (apparently Sotho) represent the very vanguard of the invasion of the present Union of South Africa by Bantu-speaking people—people who worked in copper and bronze in preference to iron. Where quantities of copper have been found in the lowest strata, little evidence of iron exists. The pottery is also different. While it reveals a marked diversity of form, it also shows an evolutionary process from rough undecorated ware to a highly

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refined and decorated technique. Among the latter are several types brought to light which seem to point to their having been fashioned to take a special lid, while another is exactly like a two-compartment vegetable-dish type. Both are well glazed and fired, but devoid of decorations. Another interesting feature of the pottery is the large number of spouted pots, and pots with lugs, both perforated and plain. Some of the rims have decorations on the upper edge, which is rather unusual.

Captain Gardner is convinced that the people who first settled at Bambandianalo were in no way connected with the gold-workers of Mapungubwe. He thinks that the culture at the former site is much older than that of the original Mapungubwe gold-workers, although it is not unlikely that the two groups of people lived side by side at a later date, and finally probably merged into one.

The main excavations at Bambandianalo are being conducted in a great midden containing about 40,000 tons of material that reached a maximum depth of 20 feet. It is composed of pure ash and dust with vast quantities of animal bones and sweepings from huts. Many centuries must have been required for this vast accumulation—the lower strata of which are now well consolidated.

Here the burials are also different from those uncovered on the summit of Mapungubwe. Several skeletons were found in a surround of small stones, the whole covered with potsherds, usually inverted. Animal bones were occasionally mixed with human, an occurrence which can only be explained by a cult. The bones of an animal (? cow) that had been buried ceremonially were also found: portions of a jaw, a femur and some ribs carefully covered with inverted potsherds and surrounded by small stones as in the case of the human burials.

The beads found, cylindrical 'garden-roller' types in dark green and dark purplish blue, are described by Mr Horace Beck as extremely ancient.

Masses of burnt millet and hundreds of grinders of the pestle and mortar type were also found.

The Committee has been fortunate in securing the continued services of Captain G. A. Gardner and Mr P. W. van Tonder for this (1936) season's work. As the Committee is satisfied that further work on Mapungubwe will not add materially to what we already know, Captain Gardner, who is in charge in the field, will concentrate on Bambandianalo.

Meanwhile Professor Leo Fouché has been appointed to publish

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the report on the work done at Mapungubwe up to the end of the 1934-5 expedition. A second volume dealing with the later expeditions will be issued.

The position at the moment may best be summarized as follows :—

(1) The Northern Transvaal contains remains of extensive medieval settlements. Several of these, with walled structures that contain typical chevron, herring-bone, dentelle and chequer-board designs built into the walls, definitely belong to the Zimbabwe Culture. Others, with undecorated and inferior walling, are of various dates.

(2) The oldest material culture encountered (at Bambandianalo) is apparently that of a Bantu-speaking people who worked in copper. They were potters and pastoralists, and apparently of Sotho stock. The incompleteness of the investigations obviously precludes the possibility of a final pronouncement as yet.

(3) The next oldest culture (typified at Mapungubwe and in the upper strata of Bambandianalo) has been thoroughly investigated and an authoritative and final statement ought soon to be made.

This (Mapungubwe) culture arrived at the site fully fledged and is homogeneous throughout—the greatest depth of accumulation exceeds 20 feet. It is a culture of mixed elements, apparently borne by a Bantu-speaking people of Shona-Sotho stock ; the former from the north, the latter from the west.

(4) The occupants of Mapungubwe were metal-working pastoralists who practised arts and crafts typical of the Bantu-speaking people of South Africa. Though much of their pottery is similar to that recovered from the later occupation layers at Bambandianalo, and similar also to certain forms associated with the second and grandest occupation-period of Zimbabwe, there are differences that make it clear that the natives who manufactured so much pottery at Mapungubwe possessed a slightly different material culture from that practised at Zimbabwe, most probably due to the infiltration of certain cultural elements from the west. On the whole, the pottery found at Mapungubwe is much more varied and finer than anything hitherto found in the ruins of Rhodesia.

They possessed fine skill in metal work, whether the metal was gold, copper or iron.

(5) The culture contains many imported elements, notably a great variety of coloured glass beads from the East and Chinese porcelain. The earliest date assignable to the settlement is medieval—most probably post-medieval.

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(6) The culture as a whole appears to be closely related to the second Zimbabwe period when, according to Mr Schofield, the main girdle-wall of the so-called 'Temple' was built—a period during which goldsmiths flourished and considerable quantities of imported articles found their way into the hinterland of South Africa.

(7) The natives lived in huts, kept domestic animals, cultivated ground-nuts, beans, a variety of melon and millet—and therefore presumably made beer. They traded with foreigners in much the same way as remoter native tribes do today and it was through such trade that they acquired glass beads and knick-knacks from the Near and Far East.

I consider that their existence, which apart from the smiths of the tribe appears in every way to have been rather ordinary, has been given an unwarranted glamour by an over-emphasis of their work in gold, and such ceremonial practices as reflect phallic influences.

A synoptic view of the field so far explored and the material examined, tells us that some appreciable time ago the valley adjacent to Mapungubwe was occupied by a race apparently of Sotho stock. That these people lived there for some considerable time is proved by vast accumulations of midden material. Captain Gardner thinks that the folk who settled at Bambandianalo represent the vanguard of the invasion of South Africa by Bantu-speaking tribes. They were metal-workers (mainly copper), potters and pastoralists who probably enjoyed a better rainfall than their successors—certainly a much better rainfall than is enjoyed today.

There then appeared a tribe of Sotho-Shona stock which occupied the area, living both on the summit of Mapungubwe and in the valleys immediately below. Apparently they lived in amity with their neighbours, for the Bambandianalo deposits continue undisturbed despite the change in included elements. As already stated these folk were metal workers and also potters and pastoralists who cultivated various crops—and apparently were contemporary with those who occupied Zimbabwe during its grandest phase—a phase characterized by much gold-work and contacts between the natives and traders who came to South Africa apparently in search of precious metals, which they acquired in exchange for what we would term 'kaffir truck', viz. coloured glass beads and the like.

The occurrence of these beads and of Chinese porcelain merely reflects the great daring of ancient mariners in the East, for it is known that Chinese and Indonesian ships sailed the Indian Ocean probably as

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long as 2000 years ago. The Arabs, of course, are known to have sailed down the east coast of Africa over 1000 years ago. The first account of a specific emigration from Arabia to East Africa tells of a settlement as long ago as A.D. 684, though it is probable that some Persians arrived on the coast early in the 6th century. The next record of settlement, again Arabs, is in 739. According to early historians these folk lived a wandering life and mixed freely with the natives, until they were driven inland by the next wave of immigrants. We have records that take us up to the days of Portuguese control, *i.e.* over a period of nearly 1000 years—from the 6th to the 16th centuries. From the beginning of the 16th century, our main source of information is derived from the records of the Portuguese, but little that is really more than provocative is said of the hinterland and the happenings there. What was going on at the time is not definitely known. We know only of Monomotapa and hear vague legendary talk of wars, powerful native chiefs whose tribesmen were known to have mined and worked in iron, copper and gold, and of great stone buildings, until in 1868 Adam Renders unknowingly pitched his camp on the site of the ruins of Zimbabwe itself, and so stumbled on what remained the greatest mystery of South Africa until the visit of Dr Randall MacIver thirty years ago. Unfortunately, between the time of Renders' visit and that of MacIver, the ruins had been rifled by treasure seekers, amateur archaeologists and other vandals and most of the best remains had been removed or seriously disturbed. This naturally complicated MacIver's work and rendered difficult also the work of Miss Caton-Thompson—and that is why Mapungubwe, Bambandianalo and the ancient ruins of the Transvaal are so important, for fortunately, they have escaped the vandal. The scientific excavation of Mapungubwe and Bambandianalo started with all their treasures undisturbed and we may legitimately hope that the work which is now going on—work which is sympathetically and generously supported by the State and the public—will throw very considerable light on the medieval history of South Africa.

Mapungubwe and Bambandianalo are merely two of numbers of similar settlements in the Zoutpansberg district of the Northern Transvaal, settlements that contain remains that seem to provide a link between the Zimbabwe culture so splendidly described by Miss Caton-Thompson¹ and the modern Venda settlements in the Zoutpansberg proper²; not only a geographical, but also a cultural and ethnological link.

¹ *The Zimbabwe Culture* (Oxford University Press, 1931).

² Hugh A. Stagt, *The Bavenda* (Oxford University Press, 1931).

Cambay and the Bead Trade

by A. J. ARKELL

IN 'A note on certain Agate Beads', printed in the *Antiquaries Journal* (x, 149), Mr H. C. Beck drew attention to their obscure origin. In addition to a recent distribution of 500 to 1000 roughly made agate beads, which may have come from the sale of the belongings of an old sea-captain, Mr Beck gave fourteen finds unconnected with this recent distribution, which included a comparatively small example found by Woolley at Ur in a layer confidently pronounced to date from before the 'Flood', one bead from Algeria, a string from Jerusalem, one bead from an Irish bog, a string from near Frankfort, one bead from a Merovingian grave, a string from Brittany associated with the dolmen period, others from Nantes, Orleans and elsewhere in France, and four finds from the Sudan, two being from Omdurman, where it is stated that they are occasionally dug up, and one from the 25th Dynasty treasury of Sanam at Dongola.¹

In the course of fifteen years service in the Sudan, I have seen numerous examples of these beads and also carnelian beads of apparently similar age in the possession of natives of the Sudan, especially in Darfur where fashion is frequently a century or more behind the more civilized Nile, and of pilgrims and itinerant bead-merchants² from Nigeria. There is indeed no doubt that these beads exist in some numbers in the Anglo-Egyptian Sudan, and probably all across Africa from the Red Sea to the Atlantic at this latitude, though they are now going out of fashion. In fact in the Sudan they are already out of fashion, and are most easily found today with old women who have put

¹ Mr D. B. Harden, Assistant Keeper of the Ashmolean Museum, informs me that there are four beads of grey mottled agate, well worn, of similar type to the above in Taunton Castle museum, which bear the following label: 'Agate beads similar to old Arab beads, said to have been found on Ham Hill, Somerset'. Presented by Mr E. Lovett. 1915.

² Nearly all itinerant bead-merchants (or rather pedlars) in the Sudan are the so-called Fellāta, *i.e.*, natives of northern Nigeria and occasionally Senegal. Bead pedlars are usually Hausa, and sometimes Fulani.

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them away because their daughters do not want them, or with Nigerian bead-pedlars who have bought them up because they know several localities in West Africa where they are still in demand.³ I have been frequently told by these bead-pedlars that the main sources of supply are the sites of old towns along the Blue, White and main Niles between Berber and Sennar or Kosti, where they are collected by children and others. From my own observation I know that they are collected from the site of old Sennar by Fellāta of the settlement at Mai Wurno on the Blue Nile which originated from Sokoto, and I have myself picked up a few examples in both agate and carnelian on this site. They are also said to be found near Kano and on other old sites in northern Nigeria.

All these beads have been bored from both ends ; in some cases more than one attempt has had to be made before the holes meet, and in others the holes meet at such a difficult angle that it is almost impossible to thread the bead.⁴ In view of this fact, Mr Beck and I agreed that they were not recently made at Oberstein in Germany, as suggested by Mr F. Addison (*Sudan Notes and Records*, xv, 152-4),⁵ and I decided to try to solve the mystery by making my own enquiries in the Sudan.

On my way back to my station in that country in 1934 I made a few enquiries on landing at Port Sudan, the chief port of the Sudan on the Red Sea. Mr Addison had suggested India as a possible source for these beads, and from the *Periplus*⁶ and *Duarte Barbosa*⁷ it appeared to me probable that this was correct ; but at Port Sudan I was informed by the chief Indian merchants that no beads of any kind are now

³ Several such pedlars expressed the intention of selling carnelian beads of the type of FIG. 26 at Onitsha in southern Nigeria, where it is said they are cut up into smaller beads ? by Yoruba.

⁴ Compare a footnote to the chapter of the Ant in Sale's edition of the Koran, where a story is quoted from Al Beidawi of how the Queen of Sheba, in order to try whether Solomon was a prophet or no, sent him among other things an onyx drilled with a crooked hole, and Solomon solved the difficulty by ordering a worm to pass a thread through the onyx.

⁵ There is a different type of agate bead, whose prototype occurs at Mohenjo-daro in the 3rd millennium B.C., which is still being made at Idar near Oberstein in Germany from agate of Brazilian origin, and being imported into the Sudan, together with imitations in glass from Czechoslovakia ; on which I hope to publish a note later.

⁶ *The Periplus of the Erythraean Sea*, trans. by W. H. Schoff. 1912.

⁷ *The Book of Duarte Barbosa*, trans. and ed. by M. L. Dames. (Hakluyt Society, 1918).

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imported into the Sudan from India direct. They however put me in touch with a small merchant called Abd el gawād el Baghdadi, who had spent a lifetime in retailing beads and similar trinkets. He told me that any beads of recent Indian origin in the Sudan have probably come *via* a native of Cambay called Abdelrahīm Fajju, who used to reside in Cairo, and obtained from Cambay the beads with which he supplied merchants in the Sudan.

The only beads of Indian origin which Abd el gawād had in stock were large oval beads of an inferior moss agate, which he had obtained from this Cambay merchant in Cairo, and which he sold to local Arabs at about a shilling each.

Further enquiry among the merchants of Omdurman only confirmed this information. I found at least one merchant who had obtained carnelian and agate beads from Abdelrahīm Fajju: and I therefore wrote to him. My letter was answered by Ghulam Ahmed Hindi, also a native of Cambay, who is now carrying on Abdelrahīm's business in Cairo.

At my request Ghulam Ahmed obligingly sent me from his stock samples of a number of agate and carnelian beads which were all obtained by him from Cambay, where they had been made. The first are illustrated in FIGS. 1, 2, 3, 21 and the carnelians in 9-14.⁸

It now appeared probable that the beads of FIG. 3 were the modern counterparts of the agate beads of uncertain origin to which Mr Beck had drawn attention, and that those of FIG. 14 were the same form as the eight-sided date-like carnelian beads⁹ (see FIGS. 15 and 26), which may be found in the Sudan today, and of which I have picked up examples on the site of old Sennar and on other old village sites on the banks of the Blue Nile in that vicinity.

I therefore sent Ghulam Ahmed two typical forms of Sudan agate beads, a tapering barrel and a fatter bead with abruptly cut-off ends (FIG. 19), and asked him whether he could supply exactly these

⁸ The Arab trade-names used by Ghulam Ahmed for the beads are as follows:—

SEMLAK: of doubtful meaning; Ghulam Ahmed thinks it is a Barabra word meaning 'long', but I have not been able to confirm this.

RAQABA: 'neck', and so 'necklace'.

MAKARRAR: 'repeated', and so 'similar', 'well-matched'.

MAGHRABI: so called because its best sale is to Maghraba of Kano.

⁹ These beads are on the average about $1\frac{1}{2}$ inches in length, with maximum diameter of about 1 inch at one end, and a minimum diameter of about $\frac{1}{2}$ inch at the other. They have really a square cross-section with the corners shaped off.

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two types of bead. He replied that both these beads are undoubtedly Cambay beads of the type of FIG. 3, and that the only difference is that those in FIG. 19 are worn with use, and have so lost their polish, the absence of which alters the general appearance of the bead. He added that the white stone of which these beads are made is also found naturally tinted with red or yellow, indicating that the difference in colour and grain between FIGS. 3 and 19 is insignificant.

Ghulam Ahmed further informed me that agate beads of the type of FIG. 3, and carnelian beads of the types of FIGS. 9, 10 and 14 are all exported to Nigeria, and especially to Kano, by middlemen such as himself. The beads are sent from Cairo by parcel post to Kano (*via* Liverpool and Lagos). Previously they were sent direct across Africa by caravan, the journey taking about six months, as compared with one month by parcel post. This is not inconsistent with the fact that a large proportion of the agate and carnelian beads, which I collected recently in the Sudan, mostly at El Fasher and from wandering Nigerian pedlars (some examples collected are shown in FIGS. 6-8, 15, 20, and 23-26), were said to have come from Kano and neighbouring towns in northern Nigeria,¹⁰ and there is a string of these agate beads in the Pitt-Rivers museum obtained in Kano market by Professor Henry Balfour in 1930.

In order to check Ghulam Ahmed's information, I wrote to the British Legation at Jedda, for in *Sinai, the Hedjaz and Soudan*, James Hamilton states that when he had been at Jedda in 1854 there were merchant vessels sailing to Bombay every autumn, and that there were then 1500 Indians resident at Jedda including many of the wealthiest merchants. He also recorded having seen carnelian beads for sale in their shops.

The Minister very kindly replied to my enquiries that at the present day nearly all the agate beads and all the carnelian obtainable at Jedda are imitations imported from Danzig and Germany, though a very small quantity of agate beads imported from Cambay may occasionally be found on the market. He suggested I should be able to obtain from M. Husni Gama & Bros., an Indian firm at Mecca, any specimens I might require. I therefore wrote to this firm, sending them three different examples of the agate beads still obtainable in the Sudan and one carnelian 'date' bead (FIGS. 7 and 15), and told them I wished to

¹⁰ The site of old Zamfara has several times been mentioned to me by pedlars as being a source of these beads. According to Hogben, *The Mohamadan Emirates of Northern Nigeria*, p. 107, Zamfara was only founded in the 18th century A.D.

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trace where they were made ; and I asked them to send me a few examples, if any were on sale in Mecca today.

In answer to my request they sent me 17 agate and 6 carnelian beads (FIGS. 5 and 16), and stated that all these beads came from Cambay, being brought to Mecca by Indian pilgrims, who sold them in small quantities and at higher prices than those prevailing in the Sudan today. While in the Sudan the usual price is now 1 to 2 P.T. ($2\frac{1}{2}d$ to $5d$) a bead, they had to pay 18s for the 23 beads sent to me.

As a further check, I also wrote to Messrs Ranchodlal, Girdhurlal & Co. of Bombay, who were recommended to me by the Minerals Adviser, India House, London, as lapidaries of considerable experience. I sent them two examples of agate bead obtained in the Sudan (FIGS. 6 and 8). They replied that these beads are of Cambay manufacture, and that, being still in vogue, they could be supplied in any quantity. They added that these beads are at present exported from Cambay to Persia as well as to Egypt. They wrote :—‘ As the designs in the beads are natural ones, you cannot expect to have all of the same types and sizes. . . . You need not send any further specimens, as they are . . . made in India . . . in Cambay, and nowhere else ’. With their letter they very kindly sent me free of charge seven specimens (FIG. 4) which they consider match my samples (FIGS. 6 and 8). They also sent me the following report on agates, which is of such interest that I reproduce it here :—

‘ The agate is a quartz stone usually containing silica, with proportions of alumina coloured by oxide of iron. It is generally found in round nodules or in veins in trap rocks, and sometimes in beds of streams. The chief varieties of agates are Chalcedony with colours in parallel bars ; Carnelian or red chalcedony ; Mokha stones ; Moss agates ; Blood stones ; Plasma, a grass green stone ; and Chrysoprase, an apple-green stone. These are found in different parts of Gujrath within a radius of about 120 miles of Cambay. The Bhils are the miners ’.

‘ In its natural state the agate is of a dull cloudy brown or yellow colour. After being dug out of the mines they are divided into two classes, those which should and those which should not be baked. The former are spread out in the sun, and are then baked in earthen pots by means of a fire made with goat- or cow-dung cakes. By exposure to the sun and fire, the colours of the stones are deepened and become more pronounced. The stone then passes through the three processes of sawing, chiselling and polishing ’.

PLATE I

1

2

3



4

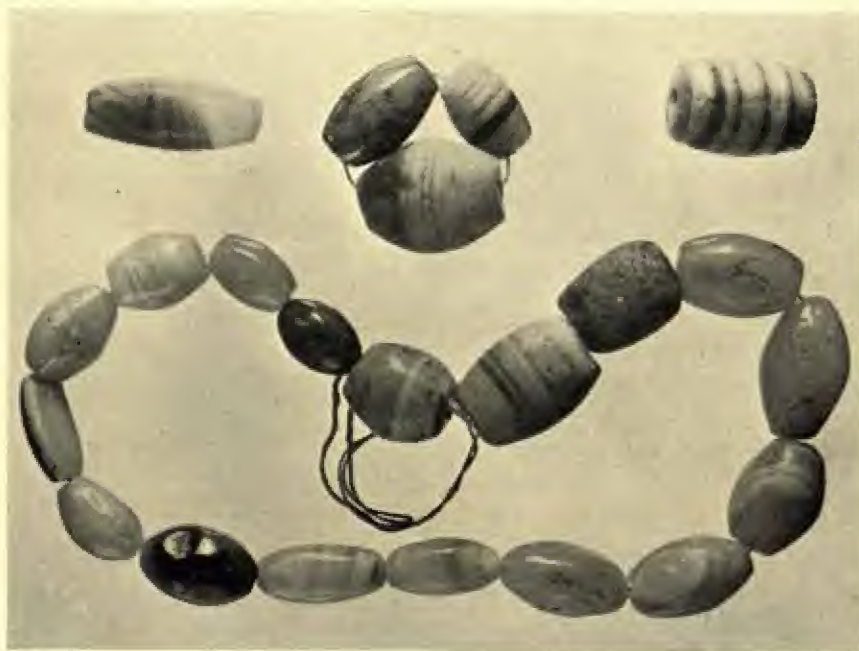
FIGS. 1-3. AGATE BEADS IMPORTED FROM CAMBAY BY GHULAM AHMED HINDI OF CAIRO
(1) egg-shaped, aqiq necklace; (2) ash coloured aqiq; (3) white semlak

FIG. 4. AGATE BEADS MADE AT CAMBAY SUPPLIED BY MESSRS RANCHODLAL,
GIRDHURLAL & CO., OF BOMBAY

8

7

6



5

FIG. 5. MIXED STRING OF OLD AND NEW AGATE BEADS OBTAINED BY MESSRS HUSNI
GAMA FROM INDIAN PILGRIMS AT MECCA—ALL SAID TO BE MADE AT CAMBAY

FIGS. 6 & 8. AGATE BEADS OBTAINED AT EL FASHER AND SENT TO MESSRS RANCHODLAL
AS SPECIMENS. Cp. FIG. 4.

FIG. 7. AGATE BEADS SAID TO COME FROM KANO, OBTAINED AT EL FASHER, AND SENT TO
MESSRS HUSNI GAMA OF MECCA AS SPECIMENS. Cp. FIG. 5.

PLATE II

12

11

13

10



9

FIGS. 9-13. CARNELIAN BEADS IMPORTED FROM CAMBAY BY GHULAM AHMED HINDI OF CAIRO :
(9) plain red aqiq ; (10) Maghrabi semlak aqiq ; (11) egg-shaped red aqiq ; (12) round faceted red aqiq ;
(13) red semlak aqiq.

14

15



16

FIG. 14. CARNELIAN BEAD OBTAINED AT ZALINGEI IN DARFUR, AND SENT TO MESSRS HUSNI GAMA OF MECCA AS SPECIMEN. Cp. FIG. 16
FIG. 15. CARNELIAN BEADS IMPORTED FROM CAMBAY BY GHULAM AHMED HINDI OF CAIRO
FIG. 16. CARNELIAN BEADS OBTAINED BY MESSRS HUSNI GAMA FROM INDIAN PILGRIMS AT MECCA, ALL SAID TO HAVE BEEN MADE AT CAMBAY

PLATE III

17



18

FIGS. 17-18. BEADS IN THE TRADESCANT COLLECTION AT THE ASHMOLEAN, PROBABLY FROM CAMBAY

{17} agate ; {18} alternate pink carnelian and white agate.

19

20

21



22

23

FIGS. 19-23. AGATE BEADS

- {19} Two beads bought at El Fasher and sent to Ghulam Ahmed as specimens. Cp. FIG. 3. (Thick one from Sokoto, thin one from near Khartum).
 {21} Semi-transparent white beads recently imported from Cambay by Ghulam Ahmed of Cairo.
 {22} Beads from grave at Uri in Northern Darfur, date ? between 1200 and 1600 A.D.
 {23} Beads bought in Darfur.

PLATE IV



FIGS. 24-25. AGATE HEADS OBTAINED IN DARFUR:
(24) from Nigerian pilgrims; (25, centre) from pedlars and others who had brought them from Ondurman and elsewhere on the Nile.



FIG. 26. DATE-SHAPED CARNELIAN BEADS PURCHASED IN DARFUR FROM NIGERIAN BEAD PEDLARS AND OTHERS

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' When a stone is to be sawn, it is firmly fixed in a strong frame composed of two uprights, joined at the foot by a bar, the cement holding the stone being made of beeswax and cloth fibres. The saw is a thin toothless iron plate, one edge of which is fixed in a light wooden frame and according to the size of the stone is worked backwards and forwards by one or two men. A mixture of ground emery, fine sand and water is kept dropping into the cleft gradually made by the saw and these materials assist in cutting through the stone '.

' To chisel into shape, the stone is laid against the edge of a spike driven into the ground till only the head is left above the surface. The workman then strikes with a horn-headed hammer that portion of the stone to be broken off, till all roughness has been removed '.

' The article is now handed over to the polisher. He takes it to a platform whereon are two strong wooden uprights, and between the uprights a wooden roller, fastened into a head at one end. This roller works on an iron spindle or axle. On the one end the axle is screwed and fitted with a nut to which a plate or disc can be made fast. The grinding or polishing plates are made of copper, wood or emery mixed with seed lac. The emery is carefully powdered and its preparation varies in fineness according to the nature of the work. Copper plates are only used for polishing very hard stones, and wood for the softer variety. The disc best suited to the stone to be polished is fastened to the roller by the workman who, squatting on his hams, steadies the machine with his foot. A bow with its string passed round the wooden roller, is held in his right hand, and by moving the bow backwards and forwards, the roller and with it the polishing plate is whirled round, while the article to be polished is held in the workman's left hand, and is pressed against the outer face of the polishing disc as it revolves '.

' After the beads have been chiselled into shape, to smooth their surfaces a number are fixed in wooden or bamboo clamps, and rubbed on the coarse and hard smoothing stone. Next they are clasped in a grooved cramp and rubbed along a wooden polishing board. The surface of this board is cut into grooves and is coated with a composition of emery and seed lac. To give them their final brilliancy, beads are polished with a mixture of emery dust and fine carlinian powder placed in a strong leather bag about 1 foot by 2 feet. The mouth of the bag is tied, and a flat leather thong is passed around its centre. Seated at opposite ends of a room, two men, each holding one end of this leather thong, drag the bag backwards and forwards, making it and its contents revolve. This process lasts from ten to fifteen days, during the whole

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of which time the bag is kept moistened with water. After polishing, the beads are bored by a diamond-tipped steel drill, water being dropped into the hole through a thin narrow reed or metal tube. Knife handles are prepared in the same way'.

In making cups, saucers and other hollow articles, the outside is first chiselled into shape and ground on the smoothing stone. To hollow the inside the diamond-tipped drill is worked to the depth of a quarter of an inch all over the upper surface until it is honey-combed with drill holes. The spaces between these holes are then chipped away till a hollow is formed, and the process is repeated until the desired depth is attained. The inside is then polished on a cone composed of the same materials as the polishing discs. Flat ornaments, such as paper-cutters, paper-weights and ornamental slabs are sawn into layers of the required thickness and polished in the ordinary way. The working of agates takes a considerable time, but when the stones are fine specimens the results repay the labour expended upon them'.

The introduction of artificial agates in Europe has seriously interfered with the industry in recent years, the result being that the working of natural stones has ceased. Certainly, modern appliances must be used to simplify and expedite the grinding and polishing processes to revive the old industry of Cambay. The workmen employed in the industry should be intelligent, and merchants dealing in this trade should employ modern methods of advertising and pushing the merchandise. Even then, it is a question, whether this trade can flourish in the absence of importers from other countries'.

The earliest definite reference in literature to the export of agate and carnelian from this part of the world to Egypt, etc., that I know is in the *Periplus* (c. A.D. 60), in which the export of *ὄνυχιν λιθία καὶ μουρρίνη* from Barygaza (=modern Broach) is mentioned. Schoff in his edition (pp. 42 and 193) translates this 'agate and carnelian', and further suggests with a considerable degree of probability that the 'onyx stone' of Genesis II, 12, which reached the ancient world through the 'land of Havilah' on the Persian Gulf, was Cambay agate. Compare also Ezekiel, XXVII, 16, where the prophet is speaking of Tyre: 'Syria was thy merchant by reason of the multitude of wares of thy making; they occupied in thy fairs with emeralds, purple, and brodered work, and fine linen and coral and agate'. Here we probably have a reference to agate that had come from India overland from the Persian Gulf to Aleppo. Schoff also points out that the murrhine, which

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first became known to the Romans after the conquests of Pompey the Great in Asia (*Pliny*, xxxvii, 7, 8) was probably Cambay agate.¹¹

The export of agate and carnelian from Cambay is mentioned in the *Travels of Ludovica di Varthema*¹², which took place between 1503 and 1508. Varthema's first stop in India was at Cambay, of which he says 'an immense quantity of cotton is produced here, so that every year forty or fifty vessels are laden with cotton and silk stuffs, which stuffs are carried into different countries. In the Kingdom of Combeia also, about six days journey, there is a mountain whence cornelians are extracted, and the mountain of chalcedonies'.

The first definite mention of the export of agate and carnelian beads from Cambay, of which I am aware, is in *The Book of Duarte Barbosa*,¹³ for drawing my attention to which I am indebted to Prof. C. G. Seligman.

Barbosa, who completed his account of the countries bordering on the Indian Ocean about 1518, was a Portuguese official in the service of the Portuguese government in India from 1500 to about 1516. When at about the beginning of this period, the Portuguese made their way along the coast of East Africa, they found that all the trade of the ports they touched at was connected with the great kingdom of Cambaya. In Barbosa's account, Cambay beads are described as one of the important articles of trade brought from India to the Red Sea and the East Coast of Africa by Mohammedan sea-faring traders, whose long established monopoly of the trade between the Mediterranean¹⁴ and India and the Far East, *via* the Red Sea, the Portuguese were at that time endeavouring with considerable success to break. The indication is that this trade in Cambay beads had been going on for a long time, and though I know no explicit references in literature to the export of agate from Cambay between the Periplus and the sixteenth century, the

¹¹ There is an apparent allusion to the working of agate and carnelian by Indians in Philostratus' *Life of Apollonius of Tyana*, written A.D. 217 (p. 291 of vol. 1 in the Loeb edition), bk. III, ch. 27 :—' Now the precious stones imported from India are employed in Greece for necklaces and rings because they are so small, but among the Indians they are turned into decanters and wine coolers, because they are so large, and into goblets of such size that from a single one of them four persons can slake their thirst at midsummer'.

¹² Hakluyt Society edition, pp. 106, 107.

¹³ *loc. cit.*, vol. 1, pp. 6, 12, 15, 33, 136, 137, 142-45.

¹⁴ Previous to Portuguese interference, merchandize from the East was landed at Suez, and taken by camel to Cairo, where other merchants took it to Alexandria, and sold it to Venetians.

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possible literary sources are few ; and I see no reason why Cambay agate and carnelian should not have continued to form one of the staple commodities of the Red Sea-Indian trade, which no doubt continued without a serious break through these fourteen centuries.

I can best give an idea of the extent of the trade in Barbosa's time, by giving the following extracts (pp. 6 ff.) from his work :—

At Sofala (1505) the Mohamedans had dwelt for a long time, by reason of the great traffic which they carried on with the heathen of the main land and the manner of their traffic was this : they came in small vessels named *Zambūcos* from the kingdom of Quiloa, Mombaça and Melynde, bringing many cotton cloths . . . and many small beads, grey, red and yellow, which things come to the said kingdoms from the great kingdom of Cambaya in other greater ships.¹⁵

Beyond Sofala inland lay the ' great kingdom of Benametapa pertaining to the heathen '. Here too beads from Cambaya were greatly esteemed. We also read of a ' very great town of Moors ' (*i.e.*, Mohammedans) ' called Angoya ', (which Barbosa's editor suggests was on the northern branch of the Zambesi). ' In it dwell many merchants who deal in gold, ivory, silk and cotton cloths and Cambay beads '. Mombasa is described as full of ships from Sofala, Cambaya and Zanzibar. Berbera too, ' whither go many ships carrying much merchandise from Adem and Cambaya '. The city of Adem¹⁶ was visited by ships

from all parts more especially from the port of Juda (Jedda), whence they bring copper, quicksilver, vermilion, coral, and woollen and silken cloths, and they take thither on their return great store of spices, drugs, cotton cloths, and other wares of the great kingdom of Cambaya. From Zeila and Berbera too come many ships with foodstuffs in abundance ; in return they take back Cambay cloth and beads both large and small, and all the goods in which they trade from Arabia Felix and Preste Joan's country also come here, as do the ships of Ormuz and Cambaya and those of Cambaya come laden with cloth of many kinds : so great is the number of them that it seems an astonishing thing ! And as I have already said, they bring cotton, drugs (great quantity), gems, seed pearls in abundance, *alagueguas* (=carnelian, from the Arabic *AL 'AQIḠ*).

Of Gujerat and the ' fair city of Cambaya ' Barbosa records (pp. 136 *passim*) the following :—

Further on after leaving Barbasy there is a place called Guindarim (Ghandhar) at the mouth of a river with a very good harbour, in which all sorts of goods are dealt with, for the reason that the great city of Cambaya is situated further up the

¹⁵ There is no reason to think that glass beads are indicated. This description fits well enough the beads exported from Cambay today.

¹⁶ *i.e.* Aden, on whose trade with India Ibn Batuta had expatiated two centuries before.

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same river. Hither come ships from Malabar . . . and they take away . . . carnelians (*alagueguas*) and other wares, by which they make great profits in India.

At Cambay are many skilful turners who make . . . beads of sundry kinds, black, yellow, blue¹⁷ and red and many other colours, which are carried hence to many other places. Here too are many workers in stones. . . . A great amount of work is also done here in coral, *alagueguas* (carnelians) and other stones; so that in this city the best workmen in every kind of work are found.

Beyond this City of Cambaya, further inland, is a town called Limadura. Here is found an *alaguequa* rock which is a white, milky or red stone which is made much redder in the fire. They extract it in large pieces and there are cunning craftsmen here who shape it, bore it, and make it up into divers fashions, that is to say, long, eight-sided, round and olive-leaf shapes. . . . The dealers come hither from Cambaya to buy them and they [thread them and] sell them on the Red Sea coast, whence they pass to our lands by way of Cairo and Alexandria. They take them also to Arabia and Persia, and to India where our people buy them to take to Portugal. And here they find great abundance of *Babagoure*, which we call . . . chalcedony, which are stones with grey and white veins in them, which they fashion perfectly round, and after they are bored the Moors wear them on their arms in such manner that they touch the skin, saying that they are good to preserve chastity; as these stones are plentiful they are not worth much'.

Barbosa's editor, M. L. Dames, shows that Limadura is Limodra, close to Ratanpur in the Rajpipla State. It is on the banks of the Nerbudda, which is navigable from Broach.

He states that in the beginning of the 17th century the seat of the carnelian industry appears to have been transferred from Limodra to Cambay, and after that date only the preliminary operations of sorting the stones and exposing them to fire to develop the colour were performed at Limodra. They were then taken to Cambay to be cut, polished and worked up. Limodra is within four miles of the mines. Its ruins testify to its having been a place of great importance as early as the beginning of the 11th century, and an inscription found there is dated A.D. 1004.

Even now the preliminary operations of sorting and exposing the stones to fire to develop their colour are carried on there.

Further corroboration of the above is given in Dr Watt's *Dictionary of the Economic Products of India*, vol. II, columns 614-619, from which the following information is extracted :—

Agate in India is mainly obtained from the mines of Rewa Kantha in the Bombay Presidency, but mines exist also in Bengal in the Rajmahal

¹⁷ Blue probably means blue-grey, one of the shades of agate. Here again I see no reason to think the reference is to glass beads, of which the export from Cambay is never mentioned.

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and Singbhum districts, in Hyderabad, and in the Central Provinces at Jabulpur.

Dr Watt divides agate into four kinds: common agate (of which he distinguishes a white, half clear, stone known as *dola* and a cloudy streaked one called *jamo*), moss agate, Kapadvanj agate, and veined agate.

Both kinds of common agate come from Kathiawar near Mahedpur in Morvi, three miles from Tankara. These stones are brought to Cambay dealers by merchants. When worked up common agate is greyish white, and being hard, brittle and massive, takes a high polish.

Moss agate comes from Budkotra, also three miles from Tankara: It shows, on a base of crystal, sometimes clear, and sometimes clouded, tracings as of dark green or red brown moss.

Veined agate, the most valued Cambay agate, comes from Ranpur in Ahmedabad. When polished, it shows a dark ground with white streaks, or dark veins on a light ground. Its colour is readily intensified by artificial means. It is boiled in oil and then in sulphuric acid to heighten its colour. Red varieties are produced by boiling it in a solution of proto-sulphate of iron, thus very often forming carnelians.

Mocha stones are clear greyish chalcedonies with clouds or dashes of rich brown of various shades. They probably owe their colour to art. They come from the Deccan trap.

Blood stone is dark green agate containing bright red spots like drops of blood.

Cambay and Broach hold their own as great emporia of carefully prepared carbuncles, carnelians and agate cups.

Carnelian is a reddish variety of chalcedony, but it is sometimes of yellow or brown colour. White carnelians are rare.

The principal source of carnelian is the mines of Ratanpur, about 14 miles from Broach.

Dr Watt confirms that when collecting pebbles the miners divide them into those of which the colour cannot be improved by burning (*i.e.* onyx, cat's-eye and yellow agate), and those of which it can (all others).

The latter are baked to bring out the colour. They are exposed to the sun in the hot season (March and April), and burnt for a day or two under pots in May. Good stones are carried to the Nerbudda and floated to Broach, where they are shipped in large vessels for Cambay and offered for sale to Cambay dealers.

The effect of exposure to sun and fire is to turn light shades of

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brown to white and dark to chestnut. Maize-coloured stones become rosy-tinted, orange stones become red, and yellow stones become pinkish purple. Cloudy browns and yellows mixed become marked by bands of white and red. The hue of carnelian varies from palest flesh to deepest blood red. The best are a deep clear and even red, free from cracks, veins or flaws¹⁸. The larger and thicker the stone, the more valuable.

Onyx resembles agate closely, but with the colours arranged in flat horizontal planes.

The result of my enquiries is that I am convinced that all the agate and carnelian beads of the types described in this article as still to be found in use in the Sudan, have come from Cambay;¹⁹ and that they have reached Egypt (and so Europe and North Africa) or the East African coast direct both by sea, and overland *via* Persia, ever since the industry was started; the primitive method by which these beads are made today being an indication that the industry is a very old one.

The export of agate and carnelian beads from Cambay has diminished considerably in volume of recent years, owing to the fact that these beads have largely gone out of fashion, as has happened for example in the Sudan, where Czechoslovakian glass imitations are preferred as being smarter.

The most recent agate beads may be detected by their high polish. The oval agate bead with truncated ends seems not to be made at present, but both the Cambay distributor in Cairo, and a firm of Bombay lapidaries, and Indian merchants at Mecca,—both the latter of established reputation—assert without any qualification whatever that the agate and carnelian beads under discussion are examples of the types of beads still exported from Cambay today, only worn by use.

¹⁸ This probably explains why many chipped and so ancient looking beads are to be found in the Sudan.

¹⁹ Further confirmation of this theory, if any is required, is provided by some agate and carnelian beads in the Tradescant collection at the Ashmolean, of which FIGS. 17 and 18 are examples. See my article 'Some Tuareg Ornaments and their Connection with India' in J.R.A.I., LXV, 302. From their technique these beads appear to have come from Cambay, and since they appear to be respectively one of items 111 to 115, and item 116, in the original catalogue of 1685, in which Cambay is actually named as the source of some *granati* (red stones), the probability that they did come from Cambay is increased; and becomes a practical certainty when they are compared with FIGS 5, 9 and 21, and some spherical beads of banded agate, which are occasionally imported from Cambay by Ghulam Ahmed, but of which I am unfortunately unable to represent an example.

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I see no reason to doubt them. I recognize in these beads definite types, and one characteristic of beads is clearly that once a type is established as a favourite it will persist through the centuries, no two completely different localities producing exactly the same type of bead in the same material and with the same technique, though it may be impossible to tell at what date a bead of any given type was made, since the method of manufacture has remained unchanged for centuries.

The literary sources cited are sufficient in my opinion to establish that there has been a continual stream of agate and carnelian beads of these types from the Cambay vicinity to Egypt and the East Coast of Africa during the last 1900 years. This stream may have been, and probably was, at its greatest volume between A.D. 1300 and 1800, and I consider it probable that most of the beads of these types now to be found in the Sudan have reached that country since 1300, when Cambay came under Moslem domination on being conquered by the Delhi sultanate, this event presumably giving a fillip to Mohammedan trade, which seems to have been responsible for the introduction of these beads to the East Coast of Africa, and so probably to the Sudan, a similar market to that of East Africa. I would include all the four Sudan finds mentioned by Mr Beck under this category. The agate bead in the Pitt-Rivers Museum found in the treasury of Sanam by the late Prof. F. Ll. Griffith is accompanied by a carnelian bead, and it was admitted (*vide* Mr Beck's article) that these two beads might have been introduced into the treasury at some date later than that of the treasury itself. I have no doubt that they are both Cambay beads, and I think that under these circumstances it is highly probable that they were introduced into the cemetery at some much later date.

As for the finds at Omdurman, it is I think sufficient, in order to indicate their comparatively recent date, to draw attention to the facts that Omdurman only came into existence as a town of any size late in the 19th century, and that this type of bead was being imported until very recently by Omdurman merchants from Cambay through a Cairo middleman.

Indeed, those agate beads of the Cambay type which come from the Sudan, and to my knowledge can be assigned the earliest date, are three that were worn in the hair of a female skeleton in a 'Berber' or 'Saharan' type-grave which I excavated in 1935 at Uri in northern Darfur, where there is a large town of dry stone walls, of the history of which practically nothing is known. If tradition is worth anything, this town is connected with Tunis and Tripoli and can hardly be later

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than A.D. 1600, and since these agate beads were associated with a large quantity of small glass 'pound' beads of obviously Venetian origin it is unlikely to be earlier than 1200.²⁰

Similarly the hitherto accepted date of 1504 for the foundation of Sennar would appear to indicate at the earliest a medieval date for the beads found on the site of old Sennar, with the probability that those found on the surface do not go back to the date of the foundation of the town.

Yet, as already stated, I see no reason why agate and carnelian beads of these definite types should not have been made in Gujerat²¹ in the time of the Indus civilization, and possibly even earlier; and thus conclude that there is nothing inherently improbable in the theory that all the agate beads discussed by Mr Beck²² were made there.

²⁰ For other reasons I am inclined to assign the date of the foundation of Uri to the 13th century A.D.

²¹ Cambay, as far as I know, is first mentioned by Masudi in 943.

²² I do not, however, wish to dogmatize about the specimen which is dated from before the Flood!

Domesday Woodland in Southwest England

by F. W. MORGAN

THE distribution of woodland and the stages of its gradual disappearance were of fundamental importance in the early historical geography of England. Wood was a valuable element in medieval economy and one of the chief factors affecting the nature of settlement. The evidence concerning the extent of the woodland in early England is of two kinds: (1) the surface geology, which provides a basis for the reconstruction of the original extent; (2) the statistics of the Domesday Book: these refer to the eleventh century, but they may have some retrospective value. The present essay is an attempt to examine the Domesday evidence for the south and south-western counties of Berkshire, Hampshire, Wiltshire, Dorset, Somerset, Devon and Cornwall.

Our ideas of the nature and distribution of vegetation in pre-historic times are based upon ecological interpretation of the surface-geology. The clays and loams, particularly the heavy clays, were covered with dense woodland (probably oak); the coarser sands and sandstones, such as those of the Trias, the Greensand and the Eocene, carried more open woods and heaths (which in part represented degenerate woodland); while light woods were characteristic of the lower slopes of the Carboniferous Limestones, such as those of the Mendips.¹ On the Upper and Middle Chalk there was, it is now generally held, a much greater extension of the beech and ashwoods, and scrub, which now cover parts of it. But any tree growth on the Chalk was certainly comparatively open, so that this area, in relation to the heavily wooded lowlands, would have been favourable to human penetration.² It has been suggested that the loam soils derived from the brickearths, calcareous boulder clay, or Greensand, should be regarded as intermediate in type between the heavy clays and the chalk, and were likely to have carried similar comparatively open vegetation.³

¹ A. G. Tansley, *Types of British Vegetation* (1911), 76, 89, 148.

² Emphasized by Sir Cyril Fox, *The Personality of Britain* (2nd ed. 1933), 49.

³ S. W. Wooldridge and D. L. Linton, 'The Loam-Terrains of Southeast England in their Relation to its Early History', *ANTIQUITY* 1933, vii, 297.

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These inferences, based upon geology, form a valuable guide in discussing distributions of the Roman, Saxon and Scandinavian periods,⁴ but it is obvious that, as time went on, the effects of continued clearing must have increasingly modified the direct consequences of soil and climate. It is not possible to be dogmatic about the factors involved in this clearing. In some regions dense woodland provided an obstacle to early settlement and persisted as negative areas; in other regions, the localities of dense wood were those of most fertile soil and these, once clearing had taken place, became very positive areas in the settlement pattern. Nor is it possible to dogmatize about the extent and rapidity of this clearing. That it did take place is all we can say. Direct references in Anglo-Saxon charters are few, though King Alfred's words indicate that the work of clearing proceeded with the spread of settlement:

We wonder not that men should work in timber-felling and in carrying and building, for a man hopes that if he has built a cottage on *laenland* of his lord, with his lord's help, he may be allowed to lie there awhile, and hunt and fowl and fish, and occupy the *laenland* as he likes, until through his lord's grace he may perhaps some day obtain *boc-land* and permanent inheritance.⁵

The distribution of certain place-name elements frequently gives valuable hints about the progress of early settlement and the clearing of wood. There are interesting correlations in the recent volumes of the Place-Name Society, *e.g.* in Essex, where the endings *leah* and *den* (denoting clearing and settlement in woodland) are distinct from the endings *ing* and *ingaham* (associated with early settlement).⁶ Further,

⁴ As in the Ordnance Survey Maps, *Roman Britain* (2nd edition, 1928), and *Britain in the Dark Ages* (South sheet, 1935). In the latter the forest distribution of the Roman map was employed, the reason given being that clearing between the Roman period and 871 must have been almost negligible.

⁵ 'Blossom Gatherings out of St. Augustine', Brit. Museum, Vit. A, xv. f. 1; see F. Seebohm, *The English Village Community* (1883), 169.

⁶ It is often assumed that where such settlement has advanced into clay land (woodland) it has become scattered. This undoubtedly occurred frequently, and an examination of the earliest one-inch sheets of the Ordnance Survey (1809-30), which are invaluable for this purpose, will show that scattered settlement is generally true of areas of Eocene beds and Clay-with-Flints, *e.g.* mid and south Berkshire and north and northwest Hampshire. But on the heavy clays there is much less coincidence—for example, the sixteen villages on the Gault and Kimmeridge Clays of the Vale of White Horse are almost entirely compact, and in the extensive cleared areas of Lias Clay in Somerset around Ilchester and on the Polden Hills, there is little scattering, though in a small area on the Dorset Lias there is a good deal. (Sheets 12, 13, 18, 19, 21).

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much of the colonization which Professor Stenton traces from boundary-names was probably penetration into woodland :

There is every reason to think that the village colonization which can be traced in the Middle Ages was only the last phase of a process which had begun before the oldest English records were written. Innumerable Domesday villages, as well as innumerable farms and hamlets, bear names which resemble or are identical with the names of boundary marks recorded in the old English charters, [names which] 'suggest movement outward from the core of some earlier settlement to some point on the border of its territory'.⁷

Although we have only hints to rely upon, it is evident that with the continued growth of population and the spread of settlement, the geological map can be no longer the sole guide to the distribution of woodland in the early Middle Ages. In 1086 appeared for the first time a precise and detailed record, the Domesday Survey, which included the amount of woodland in its description of each manor, in nearly every county in England.

In the eleventh century, woodland represented an important element in the rural economy. The woods of most medieval villages provided building and fencing timber, fuel, and, most important of all, 'pannage' or feed for swine in the beechmast and acorns. Some villages possessed rights in woodland outside their boundaries, either as compensation for the lack of wood or in addition to their own. Thus in the south of Wiltshire a small vill Washerne (not existing now), held the right to take each year from Milchet Wood (nearly 15 miles away on the SE border) 80 loads, what was required for repairing houses and fences, and to pasture 80 hogs there ;⁸ on the other hand, South Newton, nearby, having 200 acres of its own, possessed exactly the same rights in Milchet.⁹ In Berkshire, under Henry II, the lord of the manor of Letcombe Basset, one Richard Basset, in making over to Abingdon Abbey certain rights at his manor of Chaddleworth, several

⁷ F. M. Stenton, *Introduction to the Survey of English Place-Names* (1929), vol. I, part 1, 39-40.

⁸ D.B., I, 68. The reference is to the volume and folio in the Domesday Book, Record Commission edition, vols. I, II (ed. Abraham Farley), 1783 ; vols. III, IV (ed. Henry Ellis), 1816. Vol. I contains the Exchequer Domesday, for the greater part of England, and vol. III includes the Exon Domesday.

⁹ D.B., I, 68. Five hundred years later, in the same village of South Newton, the tenants had to undertake the transport of timber to the lord's seat at Wilton : Roxburghe Club, 'Survey of the Lands of William First Earl of Pembroke', ed. C. R. Straton, (1909), 31.

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miles away, reserved for himself rights in its woodland to fuel, building timber and pannage because Letcombe Basset possessed no woodland.¹⁰

In the Survey two main types of formula were employed for recording the amount of woodland. The first was in terms of swine:¹¹ sometimes, as in Herefordshire, the entry gave the number of swine the wood was capable of supporting, but more frequently, as in Berkshire and Hampshire, the entry ran 'there is wood worth x swine from the pannage', (*Silva de x porcis de pasnagio* or *Tantum silvae unde exeunt x porci de pasnagio*)¹² i.e. the fraction of the total kept by the villeins which was due to the lord. Thus the woods of Sonning near Reading were worth (*de*) 300 swine,¹³ those of Monks Sherborne in north Hampshire 23.¹⁴ The second formula was in terms of linear measurement: in Wiltshire, Dorset, Somerset, Devon and Cornwall the statement ran 'there is wood x leagues in length and y in breadth'; thus Amesbury had a wood 6 leagues in length and 4 in breadth,¹⁵ Swell in Somerset a wood 5 furlongs and 10 perches in length and 2 furlongs in breadth.¹⁶ In addition to these two main types, small amounts were sometimes stated in acres, frequently in Devon and Cornwall, and occasionally in the other counties. Where acres were employed they may not have implied the same everywhere, for the customary acre varied slightly in different parts of England, and an acre of wood was sometimes larger than the customary acre.¹⁷

All these statements were made in a precise fashion which suggests care in estimation if not measurement, but one or two qualifications are needed. The distribution of pannage capacity or of pannage rents may be taken as a reliable index of the occurrence of definite woodland; where the dimensions were given, however, it must be remembered that the league seems to have consisted of 12 furlongs or 1½ miles.¹⁸ The ultimate authority for this reckoning is a Battle Abbey Register, where it is stated that the league contained 12 quarentines or furlongs, and the quarentine 40 perches.¹⁹ It is difficult to say what exactly

¹⁰ J. H. Round, *V. C. H. Berkshire* (1906), I, 310.

¹¹ See H. C. Darby, (1) 'Domesday Woodland in East Anglia', *ANTIQUITY* (1934), XIV, 211; (2) 'The Domesday Geography of Norfolk and Suffolk', *Geog. Journ.* (1935), LXXXV, 432; (3) *Studies in the Historical Geography of England before 1800* (1936), 200-202.

¹² e.g. Windsor. D.B., I, 56b.

¹³ D.B., I, 58. ¹⁴ D.B., I, 45b. ¹⁵ D.B., I, 64b. ¹⁶ D.B., I, 92.

¹⁷ F. W. Maitland, *Domesday Book and Beyond* (1897), 373-6.

¹⁸ *Ibid.* 371, and O. J. Reichel in *V. C. H. Devon* (1909), I, 387.

¹⁹ *Monasticon Anglicanum*, III, 241.

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these dimensions implied or whether they were exaggerated. J. H. Round held that the smaller entries represented actual measurements, but that the lengths of a league or more must have been exaggerated.²⁰ F. W. Maitland held that the compilers had in mind shapes as well as superficial content or size :

The jurors are not speaking of superficial content, they are speaking of length and breadth, and they are either giving us the extreme diameters of irregularly shaped woods and pastures, or (and this seems more probable) they are making rough estimates of mean diameters.²¹

In a few entries the area formed by taking the dimensions as sides of a rectangle is greater than that of the present-day parish, and in the south of Somerset the recorded woodland of several manors would overlap if plotted in this way (*e.g.* Drayton²² and Curry Rivel,²³ Ilminster²⁴ and Ashill).²⁵ In the majority of entries, however, the dimensions are much smaller and raise no such problems, for the rectangles are of such a size as might reasonably have belonged to a community at a time of much wider spreading woodland. Occasionally a wood was described as *x* leagues '*inter longitudinem et latitudinem*' or '*in longitudine et latitudine*'.²⁶ Here the areal league of 12 square furlongs or 120 acres seems to have been implied.²⁷ But a search for a precise meaning of these formulae is not only difficult: it is also unprofitable. If we cannot be sure of the actual amount of woodland existing in 1086, we can at any rate form some idea of its relative distribution. The diagrammatic method of plotting the dimensions as intersecting straight lines is a literal statement of the Domesday information and avoids any assumptions as to the areas implied.²⁸

The apparently exaggerated area of woods in this minority of entries may be due, in part, to the fact that the unit of settlement, the vill, was not always co-extensive with the unit of tenure, the manor; sometimes several vills, and therefore their woodland also, were included with one manor. Sometimes, too, such vills were geographically separate, and their woods cannot now be traced. This factor is not enough to invalidate wide distributions, and occasional adjustments

²⁰ *V. C. H. Northants* (1902) 1, 279-281.

²¹ F. W. Maitland, *op. cit.* 371, 432. ²² D.B., 1, 91.

²³ D.B., 1, 86. ²⁴ D.B., 1, 91. ²⁵ D.B., 1, 92. ²⁶ *e.g.* D.B., 1, 64b.

²⁷ O. J. Reichel, *op. cit.* 387 and R. W. Eyton, *Key to Domesday, Dorset* (1878), 31.

²⁸ This method was first employed by Dr H. C. Darby in 'Domesday Woodland in Huntingdonshire', *Trans. Camb. and Hunts. Archaeol. Soc.* (1935), v, 269.



FIG. 1

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can be made. In spite of this limitation a map formed by plotting the entries must represent a great deal of the distribution of woodland in 1086.

It is improbable that there was any other woodland unenumerated save that in the royal forests, the existence of which is responsible for the chief weakness in the distribution maps. These forests were not geographical but legal entities, areas outside (*foris*) the law of the land in which game was protected by special forest laws. At the time of the Survey they were not liable for geld and were therefore not enumerated except incidentally. The records of the following centuries, chiefly the Perambulations, describe the boundaries of land under forest law at the time, and are therefore of comparatively little geographical value.²⁹ Altogether, care is needed in differentiating between the terms 'woodland' and 'forest'.

It is impossible to indicate the bounds of the forests of 1086, for to what extent they existed before the Norman Conquest 'is one of the vexed questions of English history'.³⁰ Probably their nuclei of woodland had long been reserved for hunting, but the Survey records something of the process of encroachment begun by King William. In south Wiltshire and east Berkshire there were a few references to woods or lands having been taken into the king's forest; in southwest Hampshire, of course, they were more numerous, and most of the manors around the New Forest had no wood of their own but sent a number of swine into the king's forest.³¹

Many forests, at least, seem to have contained as a nucleus considerable areas of woodland, as shown by later records of grants of timber, gale havoc, etc.,³² but at their widest extent they must have included much territory that was neither wood nor other 'waste'. In the Survey woodland entries were generally more numerous in the neighbourhood of the sites of later forests; in northwest Wiltshire, for example, in the Oxford Clay belt, a number of woods lay near the forests of Chippenham and Melksham, while in the extreme north

²⁹ See M. L. Bazeley, 'The Extent of the English Forest in the Thirteenth Century', *Trans. Roy. Hist. Soc.* (1921), ser. 4, IV, 148. For a general account of forests see H. C. Darby, *Studies in the Historical Geography of England before 1800* (1936), 173-8.

³⁰ O. G. S. Crawford, 'Primitive English Land-marks and Maps', *Empire Survey Review* (1931), I, 9.

³¹ For the creation of the New Forest see F. H. Baring, *Domesday Tables* (1909), 194-205.

³² J. C. Cox, *The Royal Forests of England* (1905), 69-70.

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the forest of Braydon, an area almost devoid of settlement, had manors with very large woods to the east and west. In fact, in all the counties,

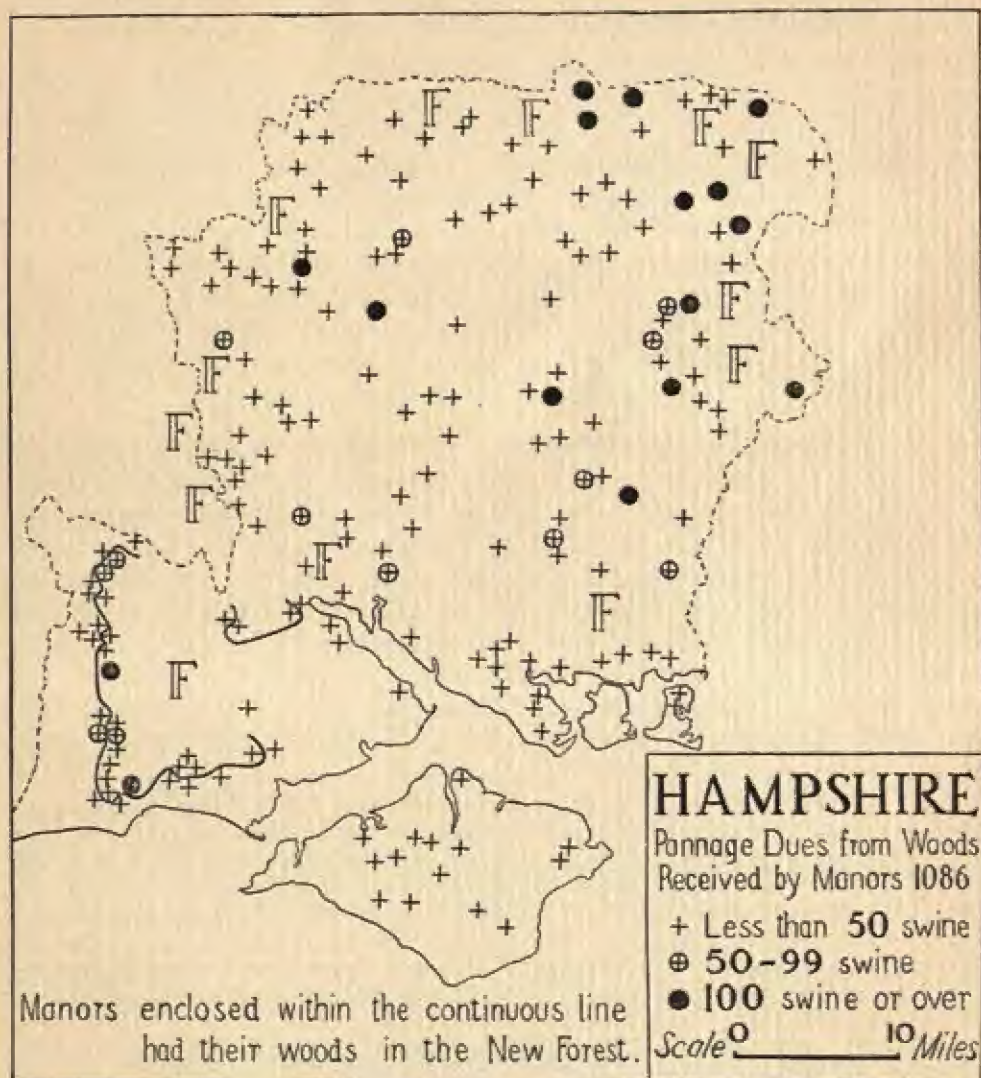


FIG. 2

an area where a forest probably existed was generally surrounded by well-wooded manors.

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The completed maps of woodland entries admit of no simple interpretation.³³ In spite of a number of marked concentrations they show a general dispersion and irregularity and by no means correspond with the geological distributions. (FIG. 1).

In Hampshire the woodland appears to have been widely scattered. This is to be expected, for the geology is varied around a central belt of chalk. In the east the county extends into the clays of the Weald; the north includes considerable areas of Eocene beds; in the northwest the chalk is largely overlain by Clay-with-Flints, and in the southwest are Eocene beds again. In these areas the pannage dues tended to be higher, but not notably; they were certainly higher in groups around the forests. An outstanding feature of the map is the frequent mention of pannage dues, some of them very large, in the villages of the Avon valley bordering the New Forest; half of these manors or holdings kept their swine within the bounds of the forest.³⁴ (FIG. 2).

The distribution in Berkshire is most interesting when compared with the geological map. The south and east of the county was well wooded, as today; this is an area of Eocene sands and clays, or of chalk largely covered with Clay-with-Flints, though the higher parts of the chalk plateau, near the actual scarp, are bare. North of the scarp are the vales of White Horse and Thames, consisting of Gault, Kimmeridge and Oxford Clays, with smaller areas of Coral Rag and sands, the whole of which originally must have been well wooded. Yet the Survey records practically no woodland here, and there were no forests.³⁵ This situation was reflected in the facts of the contemporary

³³ In the construction of these maps (1) the entries in acres have been plotted in the same way as rectangles of equal size; (2) in those few entries where a wood is described as 'x leagues in length and breadth' the leagues have been taken as areal leagues of 120 acres each, following O. J. Reichel and R. W. Eyton *op. cit.* (a decision has to be made arbitrarily, and in a paper, 'Woodland in Wiltshire at the Time of the Domesday Book', *Wilts. Arch. and N. H. Mag.* (1935), XLVII, 25, the formula was taken to mean the sum of the length and breadth); (3) the sign 'F' has been inserted on the sites of the later forests (see M. L. Bazeley, *op. cit.*); it must be remembered that the forest of Exmoor was less likely than the others to have contained trees.

³⁴ See also F. H. Baring's map of the New Forest, *op. cit.* 197.

³⁵ F. H. Baring, *op. cit.* 41, remarks on north Berkshire, without adducing any evidence, 'There is at least strong ground for suspicion that the entire absence of any mention of woodland in these hundreds was due, not always to nature, but also to omission in the returns', and suggests that near the Thames the area 'must have been well furnished with woods'.

DOMESDAY WOODLAND IN SOUTHWEST ENGLAND

human geography, for in 1086 this area was much more important economically than the Chalk and Eocene areas to the south which had retained their woodland (see *infra*).³⁶ (FIG. 3).

In Wiltshire, through which the great belt of clays continues, the situation was partly similar, but only the northeast was devoid of

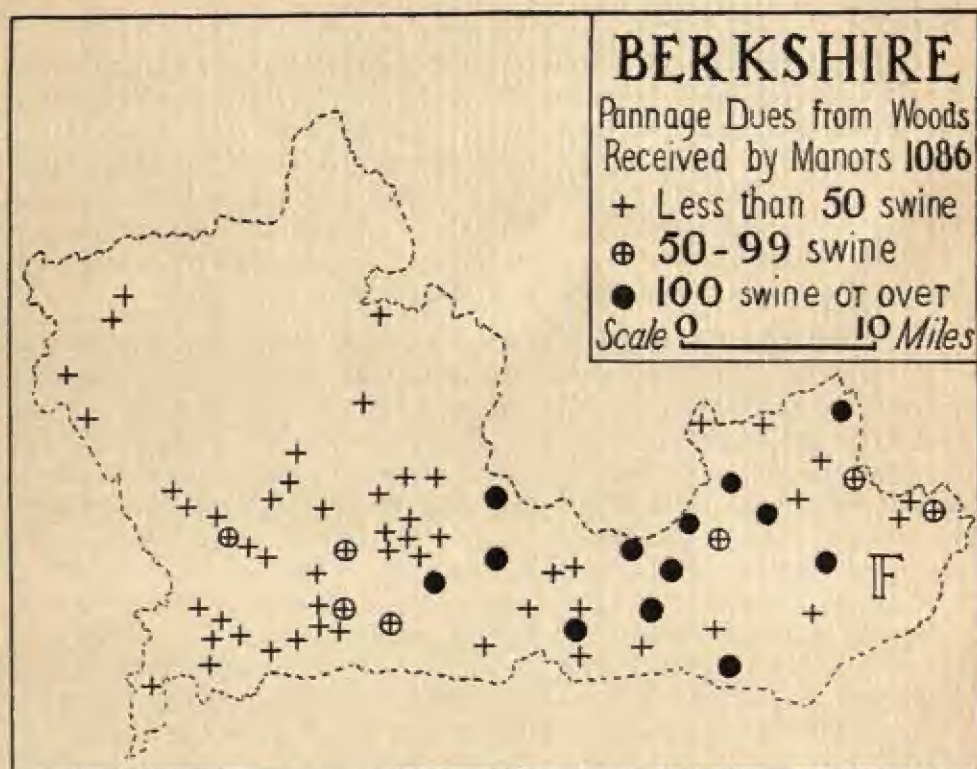


FIG. 3*

woodland. Farther west large tracts began and continued, irregularly, into Dorset. Several manors here had very large woods; swineherds

³⁶ F. W. Morgan, 'The Domesday Geography of Berkshire', *Scottish Geographical Magazine* (1935), LI, 353.

* Based upon fig. 3 (Pannage Dues), F. W. Morgan, 'The Domesday Geography of Berkshire', *Scottish Geographical Magazine* (1935) LI, 357, by permission of the Acting Editor, Royal Scottish Geographical Society.

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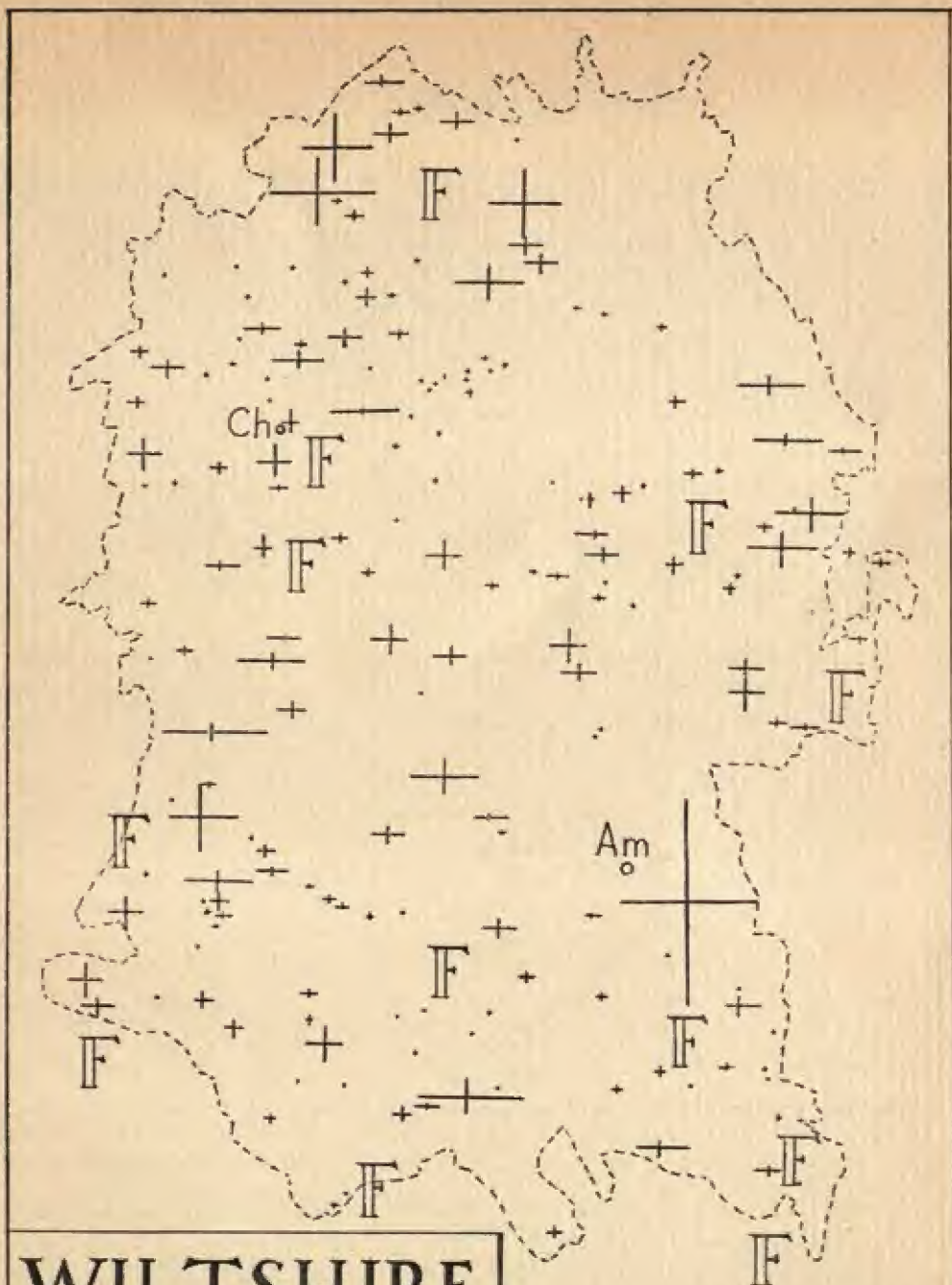
were specially mentioned on some. Here, too, were to be the royal forests of Bradon, Chippenham, Melksham and Selwood. To the northwest, the Oolite in Wiltshire carried little woodland, and, similarly, the great extent of the chalk to the east and south. Along the Berkshire and Hampshire borders, however, where the surface consists of Eocene beds and Clay-with-Flints, there were several well-wooded manors and a belt of forests later.³⁷ (FIG. 4).

The distribution in Dorset shows indications of some clearing. The Eocene beds gave rise to considerable woodland around Wimborne near the New Forest, but there were few entries for the southern part of this formation, which today is largely heath-land. The heavy clays to the north and west were by no means uniformly wooded and the Lias Clay in the extreme west was practically cleared. A certain amount lay on the Oolitic limestone. In Dorset, too, woodland entries were associated with the probable sites of four forests. (FIG. 5).

The relief and geology of Somerset are varied and can be related to several points of interest in its woodland distribution. In the extreme east was a belt of well-wooded manors on the Oxford Clay, in the neighbourhood of Selwood forest. On the wide outcrop of the Oolites some manors had extensive woods. Beyond was the broad belt of Lias Clays and here the distribution was most irregular. A considerable amount occurred around Bruton; and in the south of the county between Langport and Ilminster there was a marked concentration, so much so that the rectangles formed by assuming the dimensions to be sides of rectangles overlap. Nearby, on the other hand, a large area of the clay around Ilchester was practically devoid of recorded woodland. There was a marked absence, too, immediately to the west of Bath, while on the Polden Hills, a long peninsula of Lias Clay amid the fenland, only one of the many villages there possessed any appreciable woodland. (FIG. 6).

The Mendip Hills had extensive woods on their lower slopes of Triassic Marls and Sandstones (and here were the later forests of Kingswood and Mendip). The area of the alluvial fenland (or 'moors') in the centre was devoid of woodland, save for a little on the islands. In the west the Quantocks and Exmoor were well-wooded around their lower slopes, while the bleaker uplands were bare; scattered woods in the Vale of Taunton and the Exe valley continued into Devonshire.

³⁷ F. W. Morgan, 'Woodland in Wiltshire at the time of the Domesday Book', *Wilts. Arch. and N. H. Mag.* (1935), XLVII, 25.



WILTSHIRE

Dimensions of Recorded
Woodland 1086

Scale 0  10 Miles

Am = Amesbury
Ch = Chippenhams.

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The older rocks of Devonshire (Permian Marls and Sandstones, Carboniferous Sandstones and Clays, and the Old Red Sandstone) were likely to have been favourable to tree growth, though perhaps not so favourable as the clays to the east. The great extent of these formations was reflected in the widespread distribution of Domesday

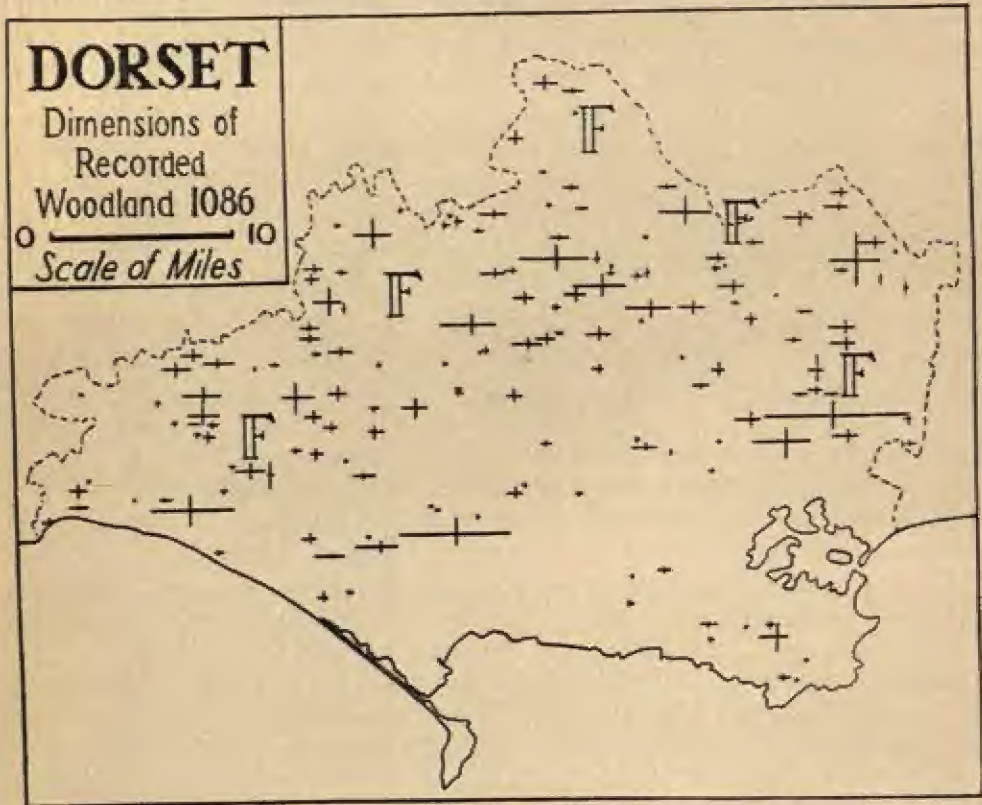


FIG. 5

woodland. Two areas only were sparse: to the north the exposed Exmoor plateau, and towards the south the granite massif of Dartmoor, where poor soil and exposure were again inimical to tree growth. The fact that in habitable regions there were no sparsely wooded tracts suggests that the woodland had been left widespread and that none had been cleared over large areas as in Berkshire, Wiltshire and Somerset. This fact may be related to the nature of the Saxon

DOMESDAY WOODLAND IN SOUTHWEST ENGLAND

colonization of Devonshire, which seems to have been 'a very gradual process, spread over all the centuries between the seventh and the eleventh, and indeed, continuing into medieval times'.³⁸ (FIG. 7).

In Cornwall the distribution was much more uneven. There was a marked concentration in the southeast in the lower Tamar valley, similar to that across the river in Devonshire. Apart from this there was little woodland in the lowlands which surround the wind-swept

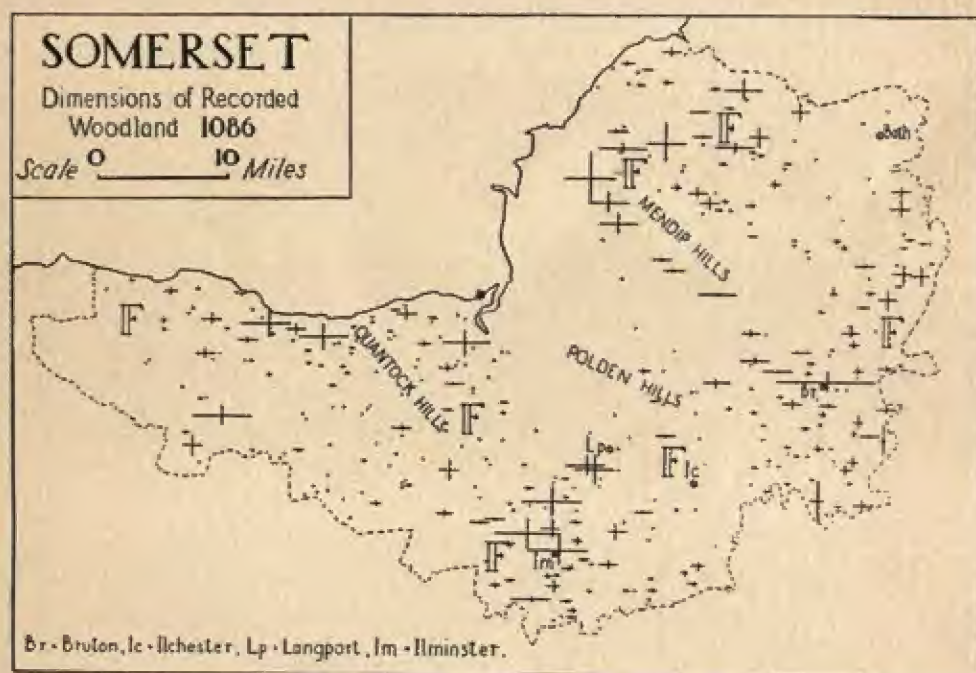


FIG. 6

granite moors, although conditions for tree growth do not appear to be particularly unfavourable.³⁹ The entries for Cornwall and

³⁸ J. E. B. Gover, A. Mawer, F. M. Stenton, *Place-Name Survey of Devonshire* (1931), xv.

³⁹ It is interesting to note that at the end of the eighteenth century a report of the Board of Agriculture stated that 'there is a good deal of coppice wood in the county of Cornwall, but little timber. Formerly the tin was smelted only with charcoal; and this made them cut down their woods and keep them only in coppice . . . there is no doubt that timber will thrive as well in many parts of Cornwall as in other counties'. R. Fraser, *General View of the County of Cornwall* (Board of Agriculture, 1794), 59.

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Devon in the Exon Domesday employ the term *nemus* to indicate wood, in contrast to the more general term *silva* of the Exchequer Domesday. It is difficult to see any significance in the distinction, however, and none

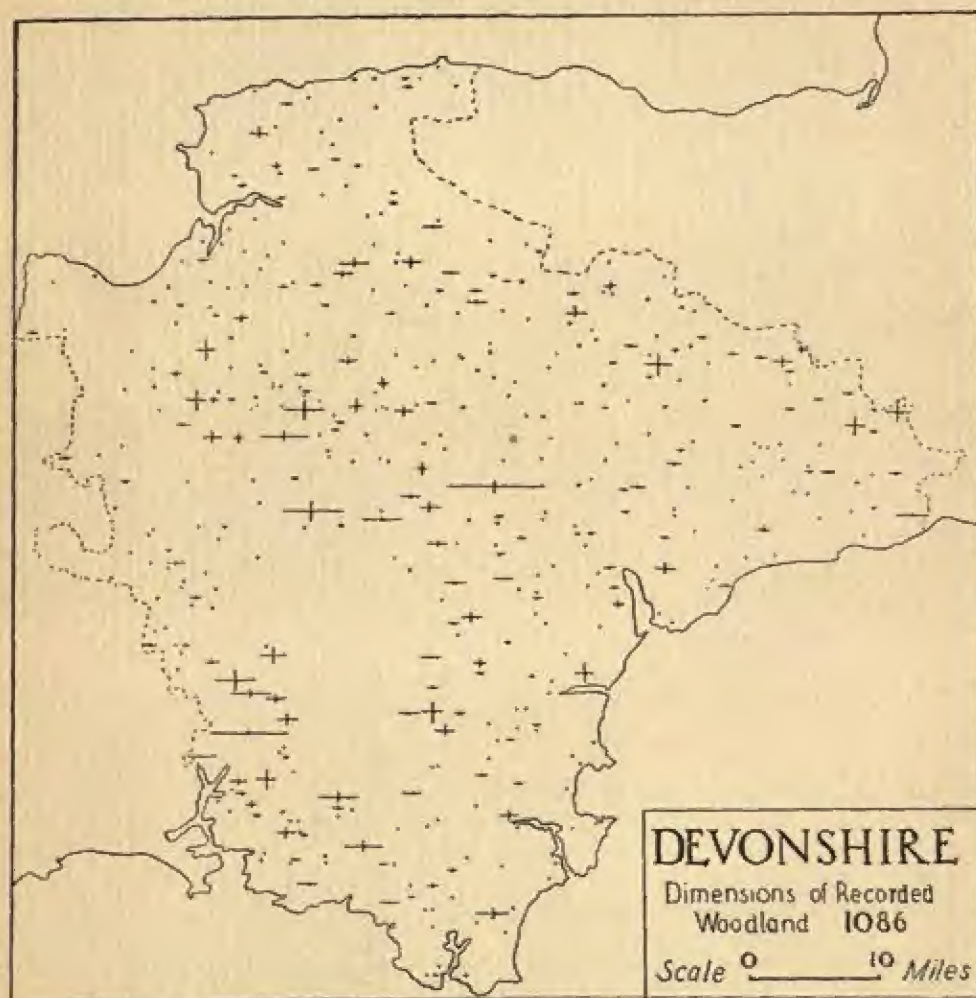


FIG. 7

was noted by Sir Henry Ellis.⁴⁰ The Exon version differed, too, in recording the numbers of animals, including swine, kept by the holder

⁴⁰ *General Introduction to Domesday Book* (1833), I, 100-101.

DOMESDAY WOODLAND IN SOUTHWEST ENGLAND

of each manor, but this information affords no check to the amount of woodland. In Cornwall it is true that 'the entries of stock show that the number of swine kept was small, very much below what is found in

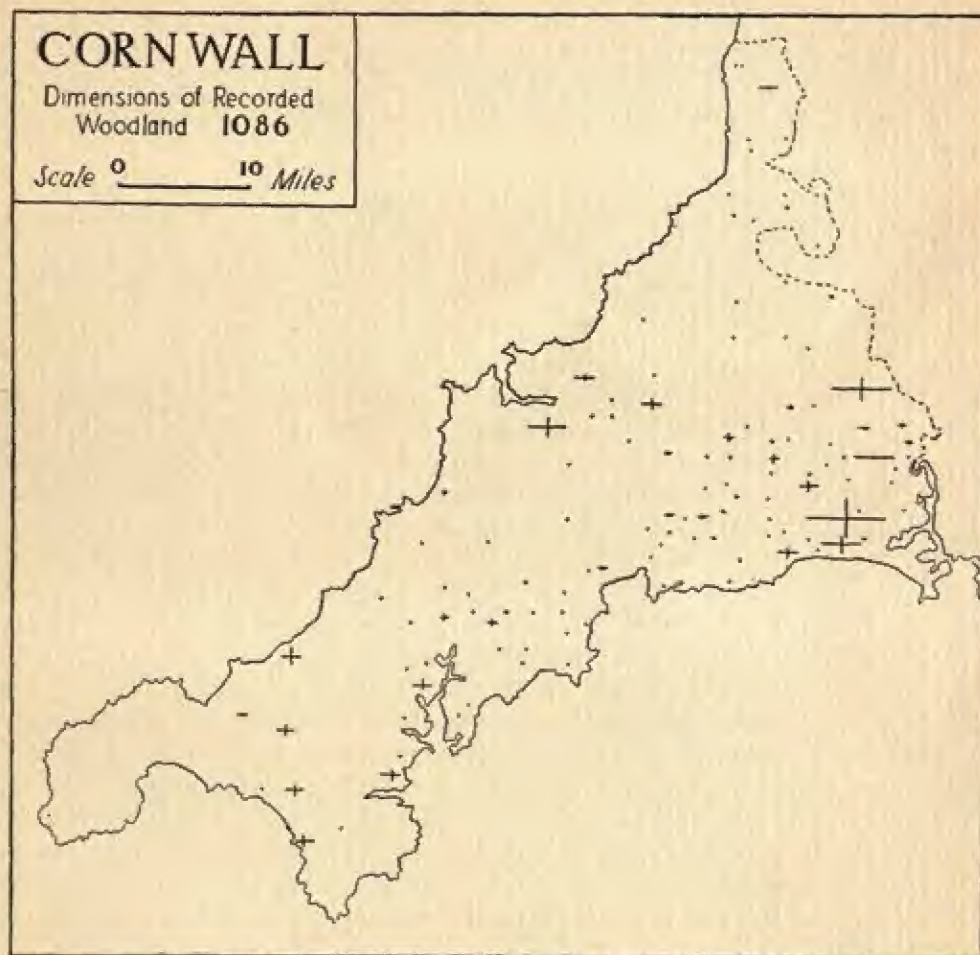


FIG. 8

many other counties',⁴¹ but this total can refer only to that of animals on the demesnes; often a manor had a large wood, but the holder appears to have kept no swine. Thus at Cargoll in Newlyn, with

⁴¹ L. F. Salzman and others, *V.C.H. : Cornwall Domesday* (1924), 56.

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4 acres of wood, there were 7 swine,⁴² but none are recorded for St. Germans, with woods 2 leagues \times 1 league and 4 leagues \times 2 leagues;⁴³ at Blacktorington in Devon, with a wood 1 league \times $\frac{1}{2}$ league, the lord had 30 swine and there is mention of 10 swineherds there.⁴⁴ Occasionally, however, reference is made to swine other than those on the demesne: at Tawstock in Devon, with 20 acres of wood, the lord had 28, and 7 swineherds rendered 35⁴⁵—that is, a pannage rent comparable with those so often associated with the manors of Berkshire and Hampshire. (FIG. 8).

In looking at these maps of Domesday woodland it must be remembered that many centuries had passed since the time of wide-spreading natural woods, and several centuries of Saxon occupation. With the growth of population the natural vegetation was affected by two forces, the grazing of animals and the requirements of the plough. The effect of pasturage in reducing the Chalk hills to their present mainly open condition was probably of much longer standing than the Saxon occupation. The pannaging of swine, however, was more characteristic of the Saxons; there are references to it in pre-Conquest charters,⁴⁶ and its constant mention in the Domesday Survey shows that it was certainly a fundamental part of their economy. Sir Cyril Fox has made the important point that the practice of pannaging, over a long period, must have done much to prevent the natural regeneration of oak and beech woods.⁴⁷ But of greater ultimate effect, probably, was the spread of settlement, involving the destruction of woodland by axe and plough, in the way hinted at by King Alfred. In Berkshire it can be seen that the process of clearing was closely connected with economic activity, for the cleared area was one of greater economic importance than the rest of the county. In 1086 the Vales of White Horse and Thames in north Berkshire, consisting chiefly of heavy clays, were marked by closer settlement, greater density of population and agricultural activity, and higher values of land, than in the Chalk and Eocene areas to the south which had largely retained their woodland.⁴⁸

⁴² D.B., III, 203. ⁴³ *Ibid.* 199b, 200. ⁴⁴ *Ibid.* 93b. ⁴⁵ *Ibid.* 94b.

⁴⁶ e.g. Birch, *Cartularium Saxonicum*, no. 513 (A.D. 866): 'LXX porcis saginam in commune illa salvatica (silvatica?) taxatione . . .'

⁴⁷ *op. cit.* 71.

⁴⁸ F. W. Morgan, *op. cit.* For examples of clearing in East Anglia see H. C. Darby, 'Domesday Woodland in East Anglia', *ANTIQUITY* (1934), XIV, 214.

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These two factors must be the main causes of the many empty spaces in the distributions in comparison with the geological map.⁴⁹ Even if a part of the area for which no wood was recorded can be ascribed to the holding of woods by distant manors, much the greater part must be the result of the destruction of woodland. The Domesday maps register, in fact, an important stage in the transformation of the physical environment through the economic needs of the Saxon community.

NOTE by O. G. S. CRAWFORD

The accompanying imperfect map of the Royal Forests of Wessex is based upon original research carried out, mostly before 1920, by O. G. S. Crawford. The extent of the area under Forest Law can be ascertained in each instance by identifying the bound-marks given in the Perambulations. Most of these are given in the Pat. 6A in the Public Record Office dated 1298-1300. Where the bounds have been identified by me they are shown by a firm line, where there is any doubt by a broken line ; when no attempt has been made to identify them the name of the Forest only appears. (The eastern part of the forest of Alice Holt and Woolmer should have been shown by a firm line, but was accidentally omitted. The Forest of Blackmore extended beyond the Stour towards that of Gillingham, with which doubtless it was once continuous).

It must not be concluded that the area within the Perambulations was necessarily all woodland. On the other hand it is fairly certain that large portions of some *were* covered with trees. Much of the area within the Perambulations was uninhabited, except for the Lodges where the Forest Officers lived and occasional purprestures, whose number increased after 1300.

⁴⁹ These spaces would be larger if a league of less than 12 furlongs be assumed.

The 'Crooked Field'

by F. G. ROE

THIS paper has nothing to do with the Celtic, Roman, or Teutonic origins of the ancient field-systems of cultivation. Even if those controversies had not been decisively settled by air-photography and its latter-day discoveries, I possess no special competence for the task. I am here concerned with the *form* of the plots or fields themselves in which these cultivation-systems were carried on. And we possess abundant evidence that what are classed by competent investigators as ancient 'Celtic-fields'—irrespective of whatever methods of cultivation or of crop-rotation prevailed within their borders—were quite frequently of the same irregular shapes as the later English fields ; of which countless numbers may still be seen.¹

I use the term 'crooked' for lack of a better ; but in many—perhaps most—instances, it is not strictly accurate. The dividing hedges, or 'stane dykes' in northern England, for example, are quite commonly straight enough in themselves ; but the fields they enclose are often neither rectangular at any one corner, nor of parallel sides ; and even where such geometrical features are found, though it be only in part, the borders of the adjoining field may not continue on any one of the same alignments.²

It would in my view be entirely illogical to explain these utterly irregular forms on any supposition of a happy-go-lucky, higgledy-piggledy, devil-may-care attitude on the part of those who first marked out their borders. I share the opinion of Thorold Rogers concerning the English farm labourer of his day—the lineal descendant frequently, of the men who laid out those fields—as one of the most versatile skilled workers the world has ever seen ;³ an opinion held by

¹ See various plans and illustrations in *ANTIQUITY*, I, 261-89, 456, 460, 463, 466, 469 ; IV, 80-95 ; VI, 389-406 ; VII, 296-97 ; IX, 472-73.

² Among many such, I have seen nothing better than the beautiful photographs of earthworks, etc., in Northern Ireland. *Ibid.* IV, 453-59 (Dec. 1930).

³ *Economic Interpretation of History*, 7th ed., 1909, p. 20.

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old William Harrison three centuries earlier.⁴ But even if we do not concede this, we may remember that these 'crooked fields' were planned for cultivation *by the plough*. Since ever ploughs bore any essential relation to the modern implement (which in England dates at least from Walter of Henley's time, 1250; doubtless from a much earlier date⁵), there has probably never been a ploughman who has not prayed for a 'square' (*i.e.*, rectangular) field; and the more unskilled or slovenly, the more reason he had to dread any acute geometrical forms in 'finishing his lands', or worse still, perhaps, in laying them out. In any event, these early pioneers no sooner had another irregular field to go at, than they proceeded to mark it off in the rigidly parallelogram 'strip-forms'. I think we may fairly assume that such men would have had their fields also of equally uniform rectangular shape if they could.

This peculiar shapelessness appears to have been almost entirely overlooked by modern students, in so far as I have been able to discover, perhaps in the more exciting chase after system-origins. One or two earlier observers exercised themselves over the problem; but I fear to little purpose. William Cobbett was an invaluable source of information on the England of his day, for he went about in all directions with his eyes open. He noted the phenomenon (doubtless among other localities) about Uphurstbourn, Hants.; and had no hesitation in stating the reason, as follows:—'A considerable portion of the land is covered with wood; and as, in the clearing of the land, the clearers followed the good soil without regard to shape of fields, the forms of the woods are of endless variety, which . . . makes this a very pleasant country'.⁶

While perhaps nobody at this date is competent to call such a thoroughly practical farmer and woodsman into question concerning a particular spot in 1822, it is beyond doubt that this explanation is entirely inadequate as a general solution of the problem. For it takes no account of the comparatively large tracts sub-divided by many of these 'crooked' fields, which present every visible indication of being generally homogeneous in soil-content and quality over broad areas; nor does it allow for the fact of so many of these boundaries being, as I have pointed out, straight enough in themselves from point to point.

⁴ Harrison:—'I haue to saie of our husbandmen . . . that they were neuer so excellent in their trades as at this present . . .' *Description* (ed. F. J. Furnivall, New Shaksp. Soc. 3 vols. 1877), 1, 136.

⁵ See E. C. Curwen on this, *ANTIQUITY*, 1, 268-72, 287.

⁶ Cobbett, *Rural Rides* (Everyman ed.), 1, 128.

THE 'CROOKED FIELD'

It is needless to stress the argument that good or poor 'soil-frontiers' do not follow any such straight lines.⁷

In the course of a discussion on this subject many years ago, another most interesting suggestion was advanced concerning the 'crooked boundaries of fields':⁸

These arise from three circumstances: first, the running of the water in the ditches, which, like all rivers, and all streams, work themselves a crooked course by indenting any soft place there may be in the bank, and flying off at an angle with increased impetus against the opposite side, much as a billiard ball does off a cushion, make a corresponding indentation a little farther on. The second cause is the growth of large trees on the banks; the roots or 'toes' of which project into the ditch for the sake of the moisture, and as the neighbours do not like to injure the timber, they cut the ditch close into the land between them, so as to make a sort of give-and-take line. The third cause, which accounts for the large curves often found in fences, is that they have followed the boundary or edge of some old pond or pool, since drained and filled up or levelled. On comparison with old maps I have known fences which were set out quite straight in allotments a hundred years ago, have now become considerably crooked. And only a short time ago, in making a survey, I found a river had changed its course and had become more crooked, to an extent of nearly double its width, since a map made in 1745.

Another contributor to the same discussion ascribed these curved boundaries to the practice on hill-sides of ploughing *along* the hill.⁹ In answer to the latter argument it may be pointed out that even in cases of known hill-side ploughing for years beyond record, such as the famous 'lynches' (linchets) at Clothall, Herts., this effect does not appear to have ensued, to the degree suggested.¹⁰ In one case I have actually seen in Alberta, where an irregular-shaped knoll in the woods, sloping downward on all sides from the centre in convex form, was first broken and invariably afterwards ploughed by commencing

⁷ ' . . . land refuses to be cut into parallelograms, each of which is 40 rods long and 4 wide . . . ' F. W. Maitland, *Domesday Book*, pp. 379, 380. Or—' each of which is good soil or bad '.

⁸ *Notes and Queries*, 1859, Ser. 2, VIII, 440. Perhaps with some such consequence in mind, it was ordained at Coventry in 1421:—' And that no man do make any hegge be viij foote nyghe the foresaid dicke (the town ditch) within ne without be vj fotte, ne that no man dig ne lede thens any cley . . . ' *Coventry Leet Book*, ed. Mary Dormer Harris, 1907-9, I, 30. ⁹ *N. & Q.* Ser. 2, VII, 485.

¹⁰ Sketch in Seebohm, *English Village Community*, p. 5; photo. reprod. in Cunningham, *Growth of English Industry and Commerce* (5th ed., 1910, frontispiece). In Seebohm's sketch the 'terracing' is much steeper and more pronounced than in Cunningham's photo, by Miss E. M. Leonard; but compare the scale-profile in E. C. Curwen, *ANTIQUITY*, I, 274. Vinogradoff notes linchets in Anglo-Saxon charters; Kemble, *Cod. Dipl. ann.* 931, 938, 959: (*English Society in the Eleventh Century*, p. 279).

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around the outer edge and finishing in the centre—no such effect was produced on a softwood post-and-rail fence ; quite as easily moved, surely, as a deeply and strongly rooted hedge. The only visible result after twelve years' annual ploughing was the piling up of a great bank ('linchet') around the outer edge ; then some eighteen inches high, and bidding fair, in due time, to overtop the fence itself.

But to whatever extent such explanations may command acceptance where the conditions of brooks or hill-sides may exist, it is obvious that they possess no value in level brookless localities. It may seem presumptuous, after emphasizing the limited applicability of every other suggestion I have met with, to advance one of my own with any hope of a general critical acceptance. I acknowledge that I should do so with much more diffidence were it not for two important circumstances. The first is that my hypothesis—as will be seen—is independent of any special local conditions, either of soils or of water-courses ; the second is that the process which I believe to be the true explanation of the 'crooked-field' is one which I have not only seen in action in this Province, but in which I have myself participated. It is something which, owing to radical and fundamental changes in methods of clearing timbered land from those in vogue thirty or forty years ago, will never be seen again as a general practice. The ruinous methods of 'wheat-mining'—as distinguished from farming, properly so-called—demanded the immediate breaking-up of the largest area possible per year. Immense tracts of country in northern Alberta were quite heavily timbered ; and it came to be recognized that the rapid clearing of this was a business of its own, which required a capital investment in machinery and power, much of which was of no use to the farmer after this preliminary work was done, and in addition was often beyond his means. The outcome was that a class of men developed who cleared and broke this difficult land at a certain price per acre ; after which the farmer took over the cultivation proper. In Rome, one is frequently compelled by economic conditions to do as the Romans do ; it is a long time since I have seen the older methods in action, at all generally.

I do not know whether it is or is not generally realized that even the older-settled portions of Alberta, for more than two-thirds of the distance between Calgary and Edmonton and including a wide lateral belt, in north-central Alberta, were very far from being 'bald-headed prairie'. In many sections, our own Edmonton district, one of the very finest, being a case in point, the country, while not solidly timbered,

THE 'CROOKED FIELD'

was—and to some extent still is—dotted with heavy clumps of wood and of willow scrub too large and heavy to be broken up at once without first grubbing out the roots as well as clearing the surface. The intervening spaces are sometimes so clear of either tree or shrub that they can be readily broken up and prepared for a crop with no other labour than 'cultivation of the soil' in the strictest sense. Land of this character is commonly termed 'parkland'. In other instances, sometimes quite generally over a fairly large district—my own homestead was situated in one—these relatively 'open' spaces are covered with a quite close and heavy growth of upland willow scrub, whose roots could generally be cut by a 'brush-breaker' (a four-horse straight wooden-beam plough, sunk down about six or seven inches deep); sometimes without, but more commonly following upon the 'brushing off', or burning, of the surface growth of scrub. This is commonly termed, according to the character of the growth, 'light scrub', or 'scrubland'. The soil beneath is the very richest heavy black loam. The settlement of the Canadian West naturally followed the earliest lines of railway; and as the Calgary and Edmonton Railway was built in 1890-91, this explains the taking up of this relatively difficult section of country, while huge tracts of open prairie land, as far east as the Manitoba boundary, were left untouched.

It almost goes without saying that the original settlers in this region, many of whom commenced with little beyond their hands,¹¹ having selected a homestead whose potentialities were either self-evident or perfectly clear to the critical expert, made it their first care, not commonly to select a site for the permanent home—this could come later—but to find the very easiest fertile spot on the place where their first five, ten, or twenty acres could be broken with the least preliminary labour; sometimes to be cropped that same spring, with surprisingly good results in many cases, if the season were favourable; but more often to lay over and be prepared for the following year.

It will at once be seen that in such a territory as I have described, it was not everybody who could 'turn the plough loose' over the entire length of 160 rods, or even one-half, or one-quarter, of that distance. Woods and tall scrub do not, as I have remarked, confine themselves either to rectangular plots. In fact, from my observation in this—and probably such would generally be the case in England or anywhere else—the natural coppice or 'spinney' apparently tends toward the circular form; perhaps owing in part to the action of winds playing

¹¹ My own father and mother reached Red Deer with \$10: July, 1894.

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around it, and possibly conveying a centripetal motion to falling seeds. In respect of larger woods, less amenable to such influences, I think anyone who has closely observed natural woodland areas—the English woodlands of today may not afford much opportunity for this—will agree that they are entirely erratic, and their borders wind in and out regardless of any relation to alignments. Under such conditions, and particularly in the ‘parklands’ and among clumps or copses whose outlines are roughly circular or convex in form, it is obvious that for the ploughman to confine his plots to the strictly rectangular shape would involve a loss for years of much good land as easily broken up as any; a loss not wholly compensated by the mere ‘economy’, real or supposed, of square furrows for one implement alone, the plough. The various other modern implements, harrow, drill, binder, etc., can traverse curves just as easily as parallelograms; and apart from some kind of harrow, they have no bearing in any case in considering the problem of early agriculture. The result is that we have our cultivated land winding in and out among the woods, exactly as Cobbett saw it in Hampshire, a century ago.¹² I may repeat that this is not conjecture; I have myself seen and practised such methods. I suspect that the reason Cobbett did not see such processes for himself during his American visit (1817–1818)¹³ would be that the Atlantic States were originally heavy and solid woodland, like eastern Canada; where the first crops were grown among the stumps and ploughing was a very difficult and irregular operation until the stumps were extracted or had rotted away. There, it was just as easy to clear in rectangular plots; and it is of course well known that this was the practice, ‘blazing’ the trees¹⁴ to mark the prescribed limit, like the ‘hags’, ‘hackways’, or ‘hagways’, of medieval or later English forest practice.¹⁵

¹² A deed cited by Maitland (Ely: *temp.* James I.) ‘... the acre 4 poles in breadth ... and by length as might happen by reasons of the configuration of the fen ...’ (*Domesday Book*, p. 383). See my FIG. 1, field E.

¹³ Wm. Cobbett, *A Year's Residence in America* (*The Abbey Classics*, c. 1929).

¹⁴ ‘Blaze’=a white vertical gash on the trunk, visible from one such to the next; the same sense as in a ‘blaze-faced’ horse.

¹⁵ ‘Hag’=a section for a year's felling in a wood; thought by Thorold Rogers to be very old (*Agriculture and Prices*, I, 21). Found in Duffield Frith, Derbyshire, 1581: Cox, *Royal Forests*, p. 198; cf. Forest of Dean, 1705: J. Nisbet, *Eng. Hist. Rev.* XXI, 445–59. Hagg as a ‘division’, in place or field-names at Selby, Yorks.: E. Bogg, *Forest of Elmet*, p. 236. Scotland, c. 1825:—‘working on a hag’, (an oak-felling and bark-peeling job): R. M. Garnier, *British Peasantry*, pp. 321–8. Not to be confused with the Border ‘moss-hags’.

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It is also quite frequently found to be the case that one of these small or irregularly-shaped areas can be extended very materially long before it becomes necessary to attack the large timber in real earnest. Trees do not invariably stand thick and close upon the ground, like a solid wall, even in a 'wooded' country; and this is particularly true of the English oak, the typical tree of so many portions of England. I have seen many instances in the class of partly-wooded territory I have been describing, where the felling and stumping of perhaps a dozen trees,¹⁶ dotted about in such a manner as to make it virtually impossible to strike out a straight 'land', or one of more than a few furrows wide, would add several acres to a field already broken, or in contemplation. Similarly, a small clump, at the entrance, so to say, of a deeply-indented 'bay' in the side of a great wood, or along the edge of one of the afore-mentioned copses or 'spinneys', by its removal would enable a straight land to be struck out, perhaps for a long furrow. An amount of stumping or 'root-felling' such as could be accomplished in two or three days—I again speak from personal experience—would sometimes suffice to change into an uninterrupted expanse of rectangular form as much land as a breaking-plough could turn over in as many weeks.

Quite as often, probably, as not, the outer borders of these new additions would neither be parallels nor at right angles to the original plot, assuming that to have been rectangular itself. In Alberta, the common method in the old rail-fence days was to fence as much as possible at once. If all the four quarters of a section (one square mile) were taken up, men were usually glad to fence one-half of their division lines, if their two neighbours wished to do the same. By this method, $1\frac{1}{2}$ miles, consisting of two half-miles on the outer sides and two quarter miles on the adjoining inner sides, fenced a settler's entire 160 acres; whereas, failing this, it required a mile of fencing to enclose only 40 acres: (a square of 80×80 rods). Partition fences, dividing pastureland, etc., came later; and for many years, while plenty of open land and 'wild hay' meadow ('slough') remained, received but little attention. Many farms contained—many still contain—but one field, from one-half to one mile square, possibly even bigger sometimes; with no other sub-dividing fences than those near the house and out-buildings.

Observe the visible consequences of this custom. In a 'parkland' or scrub country, as each newly-broken piece of land was added to

¹⁶ 'Ten-oaks field', Bucks (1227, 1573; now 'Tinick'; *Bucks*, Eng. P.N. Soc. 1925, p. 10), may have been such an instance, when it was named.

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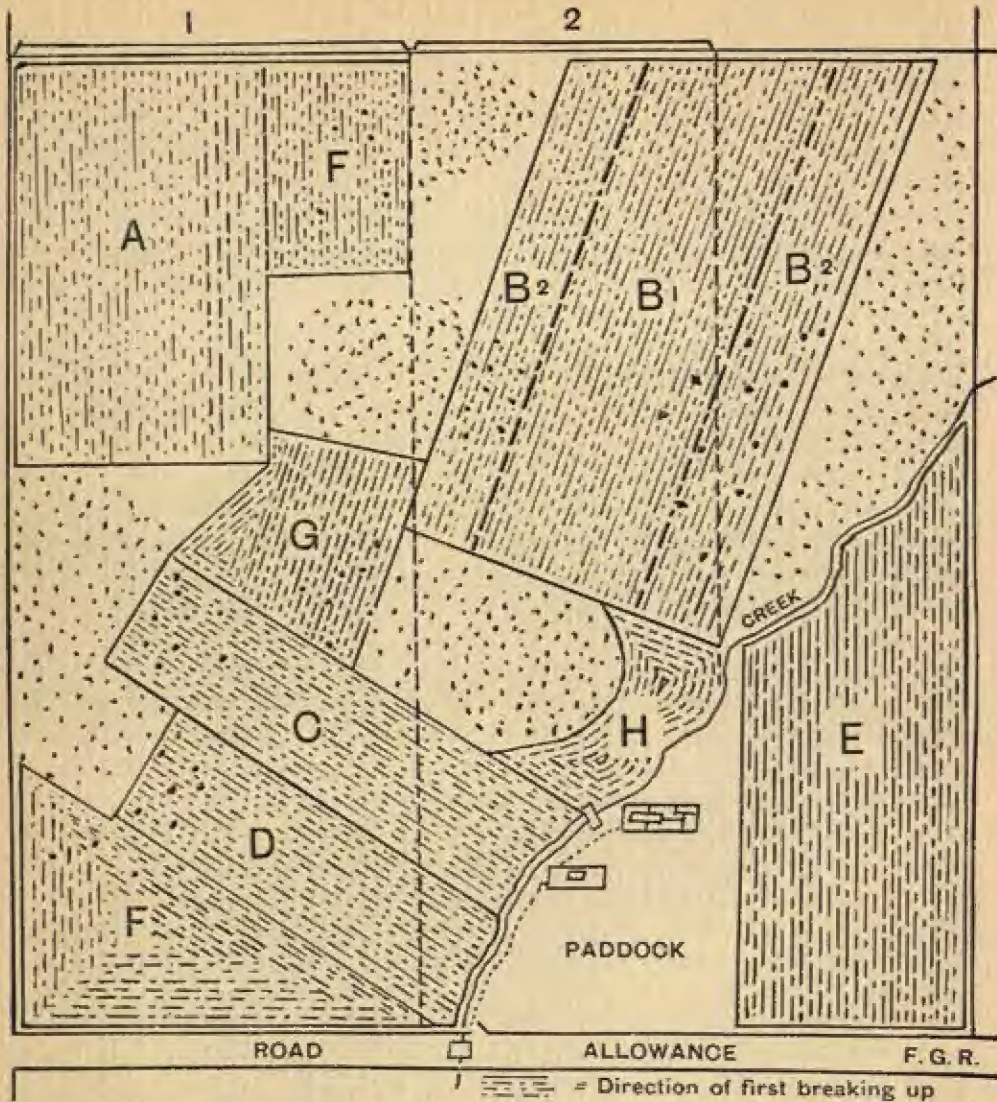


FIG. 1. ALBERTA ABOUT 1900

Scale of one half-mile square. (Total=160 acres: one 'quarter section').

a-h, Probable order in which such plots would be broken. Dots in the field spaces represent out-lying trees, cut to allow of rectangular field plots. Areas 1-2, probable order in clearing copes and breaking up. It will of course be understood that the continuation of the irregular hedges or boundaries into the unploughed, tree-dotted waste does not suggest that these were marked off in this manner (by hedges) and cleared after. It is meant to suggest, so to say, how the next plot for clearing would suggest its own lines through the woodland 'sighting' between the trees.

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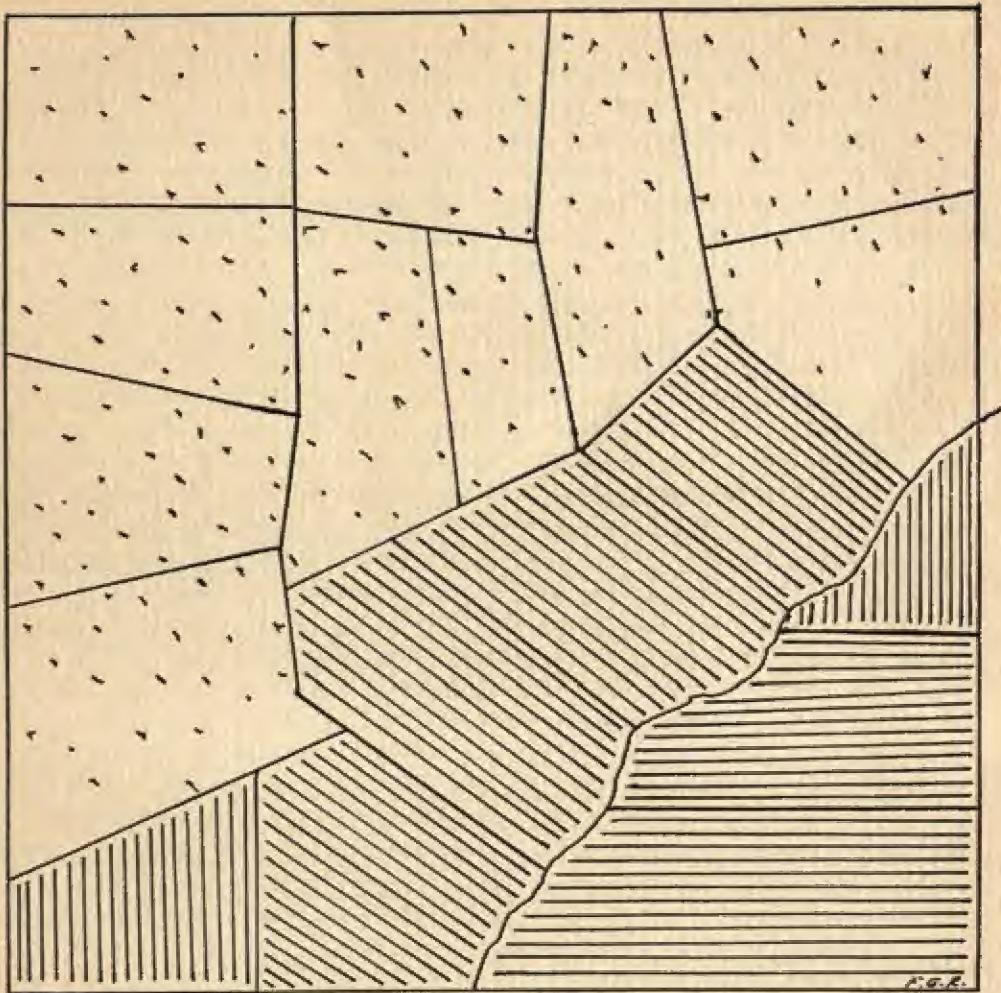


FIG. 2. ENGLAND

Scale of one half-mile square. (Total=160 acres: in 18 fields=averaging 8.9 acres per field).

The dots represent trees on the 'waste' prior to it being cleared for cultivation. They were marked *before* drawing the hypothetical dividing lines of hedge. Only one line touches a 'tree'; and could have avoided it. The different sizes of fields correspond to fact; and probably indicate the varying fortunes of the different years, war, famine, weather, pestilence, etc.; reflected in the amount brought under cultivation in such conditions.

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the original plot, there would still be but 'one plot' of cultivated land on the homestead, sometimes with the copses¹⁷ standing out in the expanses like 'islands' in a 'lake' as shapeless as many lakes of water; sometimes, as I have described it, consisting of a number of broadly rectangular plots or 'wings', some at a true right angle to the line-fences or to previous breakings, and others not;¹⁸ perhaps so wide that the perspective would fail to reveal it to the eye. Whether so or not, the fact that the entire place, or a huge portion of it, was already fenced rendered the new fencing of each additional plot needless; and here again, each year's new breaking, where it joined on to the common mass already under crop, making the field all one, would yield no indication to a new-comer how its component parts had come under the plough.

I have noticed several instances in recent years, on farms ranging from fifteen to twenty years of settlement, that having broken up all the available open land, in some cases they were attacking the small 'islands' of copsewood, the trees being felled and the stumps torn out by a 'stumper' before breaking. In other instances, small winding depressions or runlets, once considered too wet, difficult, and needless to break, and commonly bearing a heavy growth of trees or scrub, but now by the near proximity on both sides of well-cultivated land (ploughed closely in conformity with the 'configurations of the fen'),¹⁹ practically drained through evaporation from its greater exposure to sun and wind and the increased receptivity of the slopes on either hand, were being broken up for cultivation. In all these cases, the traveller viewing these farms for the first time would see no cause to suspect that the plough was not originally driven across the place from end to end. The Editor of ANTIQUITY, or one of those experienced British airmen familiar with such investigations, might very possibly detect from the air the vestiges of the 'dead furrows' in the earlier separate plots, lying at various points of the compass; in contradistinction to the later

¹⁷ See FIG. 1, field H. 'Island' . . . 'is used of any piece of ground isolated from its surroundings . . .' A Mawer, *Chief Elements of Eng. Place-Names*, p. 38. 'Frencholm', 12th cent. ' . . . a wood, surrounded by a ditch' (the meaning being sought: *N. & Q.* Ser. 8, 1, 247). Carlyle (no etymologist in English, though occasionally in German) describes (*Frederic*, VIII, 44), an open space in the woods as an 'island'. A similar place, 'Monmouth's Close', New Forest, where he is said to have been taken in 1685, called 'The Island'. *N. & Q.*, Ser. 1, 1, p. 4. 'Holme Island' (i.e., 'island island'): *Westmorland Gazette*, 5 May 1923.

¹⁸ See FIG. 1.

¹⁹ See FIG. 1, fields C, D, E, H.

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ones pointing north and south.²⁰ The cults of the large field and the treeless farm, both of them potent economic forces in a land of short seasons, machine culture, and a terrific speeding-up at seeding and harvest time—despite the aesthetic censor's disapproval of the latter manifestation, and its dire consequences to soil and climate—have obliterated the 'history' of the field, or are rapidly in the process of doing so.

Anyone possessing even the most superficial acquaintance with the elements of English manorial history is aware that the general development of English agriculture has followed very different lines. It is precisely this fact which has led to certain phases of that history being preserved (as I believe) in the English field itself, visibly proclaiming its origin to the inquirer. The Canadian homestead policy of settling upon each head of a family (or upon each adult male) a large tract of land as his freehold property, found its direct and complete antithesis in early English 'manorial custom'—to use the later phrase. One can scarcely doubt that the discouraging exclusiveness of the Anglo-Saxon village polity and its Saxon 'lord of the manor' (to again anticipate) is in part responsible for the age-long rural English aversion to the 'foreigner', who might have been a better *Englishman* (Angle) than his critics.

The very probable general *physical* history of the 'improvement' of an English manor is not hard to reconstruct. Into this particular phase, that fruitful source of contention, the exact conditions under which they 'took over' their future homesteads, scarcely need enter. Doubtless the earliest English settlers in almost any district both occupied deserted British homesteads and squatted on the virgin waste. It is of course a well-established fact that while the Celts in general were a hill-folk, either temperamentally or from the necessities arising from inferior tools not well-adapted to the clearing of heavy woodlands, the Saxons were a valley and forest folk, who preferred such situations.²¹ This involves certain implications. If the original Saxon field was more probably a 'clearing' than the Celtic fields, other factors must not be forgotten. It has been seen that the 'crooked field' by no means necessitates a prior condition of solid close-standing timber. Both the early history of English high lands like the Chilterns or the Downs and

²⁰ See FIG. 1, at large.

²¹ See E. C. Curwen, *ANTIQUITY*, I, 261-89, particularly, p. 278; O. G. S. Crawford, 'Our Debt to Rome': *Ibid.* II, 173-88.

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the analogy of their modern vegetation, tend to indicate that those regions were not absolutely, but only relatively, bare of wood. If—as would seem to follow—the English invaders would eschew such locations until their more congenial valley and forest lands began to be filled up, during this rather lengthy interval such Celtic homestead regions in their (presumably) neglected condition would probably run back in large measure to wood;²² as other English districts did under such conditions.²³ This would produce the precise *desiderata*, for the 'crooked field', of woodland rather than of solid timber.

In either case, their 'first crop' would almost certainly require a hedge or fence of some description to protect it, lest it be found that 'the boar out of the wood doth waste it, and the wild beast of the field doth devour it'.²⁴ Similarly, as the growth of the village might

²² In France, 1388, an ordinance states that 'hedges and brambles have greatly encroached on the roads, that there are even some in the midst of which trees have shot up': Jusserand, *Wayfaring Life*, p. 85. The Hebrew writer knew what follows war: '... all the land shall become briars and thorns': *Isaiah*, vii, 24; cf. Lorraine, 1728: Carlyle, *Frederic*, II, 180.

²³ Cf. Medehamstead (Peterboro) in 852; burnt by the Danes, 870; in 963, 'nothing there but old walls and wild woods': *A. S. Chronicle*, *sub ann.* That is the Fens; on 27 July 1929, near Naseby, the watershed of England, in the two years or so since the last trimming, I found growing between the road-macadam and the hedge, a thicket containing almost every English tree. Imagine ninety years of it! See also a similar 'reversion to nature' in a recognized 'Celtic-field' area, Cranborne Chase; O. G. S. Crawford, *ANTIQUITY*, II, 174, 186. Geology may delimit the occupational areas of any one tree; is there any soil in England in which *no* tree will grow? I doubt it.

²⁴ *Psalms*, LXXX, 13 (cf. *ibid.* LXXX, 12; LXXXIX, 40, etc.). It is not improbable, in woodland regions, that the first fence around a new piece would be of the nature of an *abattis*, felled in 'windrow' when marking off their new field or 'hagg', like the 'brush fence' or 'slash fence' of Ontario and other woodland regions. It seems fairly certain, from the shape of the old fields, that very seldom would more than two sides of a new plot need fencing at once, as the adjoining plots would constitute the other sides; and the timber tops and brush would probably furnish sufficient for such a purpose from the clearing of the same year. The permanent hedge could be planted inside this, and grow awhile under its protection. The term 'quickset' (hedge) points to a distinction between the transplanting of live bushes or slips ('setting quick'; as in the Catechism—'the quick and the dead'); and the mere piling up of dead thorns or underbrush. Hunter quotes a deed which (if his interpretation be correct) carries back what must have been live hedges to an early period, in Hallamshire, between 'S(h)efeld and Eglesfeld', 1161; '*sicut sepes antiquitus ante combustionem fuerunt*' ('as the hedges anciently were before the burning'); thought by Hunter to refer to William's harrying of the North, in 1069–1070 (Hunter's *Hallamshire*, orig. ed. 1819, p. 20; cf. Eastwood, *Hist. of Ecclesfield*, 1862, pp. 81–83). Probably old then; and certainly no mere *abattis*, which could not possibly (after burning) remain as a (legally) recognizable landmark for anything like a period of ninety years.

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necessitate other common fields being added to the number, these also must be fenced for similar reasons. We may be perfectly certain that in a land swarming with deer and wild swine, 'long' or 'strategic' views of fencing on a larger scale 'next year', or anything of the kind, would be impracticable. And there are fairly clear reasons why the lord would not care to follow the reverse policy of fencing a large tract beforehand, and breaking it up gradually year by year, as our Alberta settlers have commonly done. For he no doubt hoped that each successive addition to the common fields would be the last in his time; since each 'intaking' from the manorial waste or 'the lord's outwoods' very materially decreased the area over which he exercised vastly preponderating rights, and enlarged that wherein the common rights of the villagers were more nearly equal with his own. In addition to these potent considerations, it must not be forgotten that much of the heavy work of bringing these new additions to the manorial common fields under cultivation would fall upon the villagers in the summer, on top of the regular routine of field labours already devolving upon them. This fact has always laid a heavy strain upon the Alberta homesteader in the scrublands; especially the poorer man who was unable at first either to fence his entire place or a large portion equivalent to several years' breaking. Rails and posts could be got out during the winter, and in winters of light snow-fall, land might be 'brushed'. But it can only be stumped, broken, or fenced (with posts) in summer. This would quite probably apply to England also, in so far as a first breaking

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Prof. E. C. K. Gonner notes a method (recommended by Tusser and his editor) of making what a prairie farmer would call a 'windbreak' rather than a hedge. The common English hedgerow is no 'rod or much more in width': *Common Land and Inclosure*, 1912, pp. 30-31.

'The high banks in the extreme west and elsewhere (in England) have been interpreted by some as the necessary means of protection adopted when land was directly enclosed from a wild state and required defence against the depredations by wild animals ' *Ibid.* p. 100.

Dr G. G. Coulton cites one of the Berkeleys (Thomas III, 1326-61) 'whereas the part fence had hitherto been of thorn, new-made every three years, Lord Thomas went to the expense of an oaken paling'. . . . (Coulton, *Chaucer and his England*, 1908, p. 198). It seems incredible that this could have been quickset, unless it was a new one needing much cutting back, and the oak paling was to protect the defenceless park while it was growing. Possibly only an *abattis*.

The correspondent of *N. & Q.* (Ser. 2, VII, 373) who initiated the discussion, recognized this progressive reclamation of the waste, and almost had his finger on what I have suggested as the explanation.

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and perhaps hedge-planting are concerned. In addition to such factors, there were the exigencies of medieval warfare; this was almost always a summer-time occupation, and must have often interrupted agriculture.²⁵ Pestilence also no doubt frequently reduced the hoped-for results of a season's clearing.

There can, I think, be little reasonable doubt that the smaller of the 'crooked fields', about the general average of ten acres or so, really do represent one season's 'reclamation of the waste'. The suggestions advanced in the foregoing pages offer abundant reason both for the small (and varying) sizes and for the irregular shapes. The characteristic form of the English oak—the commonest tree—makes it clear to anyone who ever saw one why the felling of even *one* such tree could enlarge an available area for the plough very materially.²⁶ Such reasoning could also apply to the free tenant or yeoman of somewhat later times, perhaps in some cases with even greater force; for he would be more of a self-contained unit, like our homesteader, dependent upon the labour resources of his own household. Even if the economic and physical forces pressing upon him did not very largely point—in the pre-machine age—to the same general solutions of his problems, the innate conservatism of the English mind would no doubt lead such a man to do very much as his fathers had done. The same impulse would lead, did lead, the later hedge-planter of Georgian enclosure days to perpetuate the small and shapeless fields, long after the physical causes originating them had ceased to operate.²⁷ Even allowing for the fact (often overlooked) that what seem today to be their most glaring and self-evident

²⁵ Cf. Maitland—'. . . readers of the *English Chronicle* will doubt whether there is any village in England that has not been once, or more than once, a deserted village'. *Domesday Book*, p. 364.

²⁶ See the photo of the 'Haywood Oak', Blidworth, Sherwood: J. C. Cox, *Royal Forests*, p. 220. The 'brood oak' or 'brod ooke' which gave its name to Bradock or 'Brodewok-waste' in Coventry, 1410, 1423, etc. (*Coventry Leet Book*, I, 18, 46; II, 439, 440; cf. 1498: *ibid.* III, 588). Cf. Hunter on enormous oaks: one in Sheffield Park, branches 45 feet each way from the trunk, capable of sheltering 200 horsemen. 'Greendale Oak', Welbeck, 33 feet girth; the 'Lord's Oak', Rivelin Park, 36 feet girth; top and branches (1690) yielded 21 cords of wood (8 ft. × 4 ft. × 4 ft. = 128 cubic feet), *Hallamshire*, p. 116. Cf. 'Hatfield Broad Oak', Essex.

²⁷ A list of 71 'furlongs' (field-names) into which the open arable fields of the parish of Whitchurch, near Stratford-on-Avon, 'had been divided, prior to the inclosure of 1867, from time immemorial': T. Smith Woolley (the surveyor): *Notes and Queries*, Ser. 5, VIII, 192-3. Cf. the often early dates of field-names in the *Eng. Place-Name Soc.* volumes.

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defects had no significance in days less than fifty years ago, when the binder was unknown, and the scythe of the mower or the sickle of the reaper could work without waste or difficulty in any corner, I shall never believe that such shapeless agglomerations would have been laid out by expert practical ploughmen, for example; commencing *de novo*, untrammelled by previous associations of any description.

A most interesting corroboration of my opinions (discovered, I may be permitted to add, many years after these had first been tentatively formed) is furnished by William Marshall, a well-known agricultural writer, c. 1800. Marshall frequently refers to 'inclosure from the wild' (*i.e.* virgin 'waste'; as distinguished from inclosure of land previously cultivated as 'open common fields'); and believed it could be distinguished in various parts of England by 'fields and inclosures of irregular shapes and their fences crooked . . .'; also 'crooked fences and winding narrow lanes. . .'.²⁸ Professor Gonner also indicates some of these localities by counties;²⁹ and his table further serves to show a considerable amount of 'wild' country—in this sense—remaining down to comparatively late times. It may be remarked in passing that Marshall puts his finger on the very thing I had previously noted as the weak spot in the 'water-course' theory of the crooked boundary; that it took no account of such in places where no watercourse existed. In the pre-Macadam days, the road was the one place (like our Alberta trails before the use of the hideous 'road-allowance' was forced upon us by closer settlement) which must be and was as 'high-and-dry' as circumstances would permit. Yet the (contour) 'winding road' necessarily involves the winding fence or hedge; and is the precise spot whence the stranger's attention is first attracted to the phenomenon. Professor Gonner's inquiry did not require him to explain the distinction; but one could wish that Marshall, who was an expert observer, in touch, moreover, with much lost or inaccessible ancient tradition, had lent a little light on such fields as I have described in regions where the common field system *did* formerly exist in a high

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J. M. Kemble, c. 1850 :—' Since the happy down-fall of the corn-laws, which were a bonus upon bad husbandry, hedges are being rooted up in every quarter, and fields of 40 or 50 acres may now be seen, where they were not thought of a few years ago. . . . ' *Saxons in England* (2 vols. ed. Birch, London, 1876), I, 100.

²⁸ Gonner, *Common Land and Inclosure*, pp. 82-83, 284; also R. M. Garnier, *English Landed Interest*, I, 104.

²⁹ Gonner, *op. cit.*, p. 285.

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percentage ; and just what difference the ultimate purpose for which a field was destined should make in the configuration of its boundaries.³⁰ *A priori*, one might suppose that the field whose transfiguration from its native wildness was of later date would be the more geometrical of the two ; unless, indeed its winding boundaries had, as I said, been already fixed by the winding roads. I may add that it was from observations in Northamptonshire in 1913, a county whose percentage of 'common field enclosure' stands among the highest,³¹ that I was first led to my present conclusions.

³⁰ Some rather meagre information on this in Gonner, *op. cit.* pp. 82-3. 'As late as the beginning of this (twentieth) century there were districts whose hedges still showed traces of the pastoral or forest state, being apparently of great age, following crooked or irregular lines, and composed of underwood similar in variety to that in the adjoining woodlands, from which they had evidently been collected. . . ' Garnier, *English Landed Interest*, I, 104. Apparently Marshall's 'old coppice hedges, of age beyond memory' (in Gonner, *op. cit.*, p. 83).

J. M. Kemble :—'It is very remarkable how many modern parishes may be perambulated with no other direction than the boundaries found in the *Codex Diplomaticus (Ævi Saxonici)* ; ed. Kemble, 5 vols.). 'To this very day the little hills, brooks, even meadows and small farms, bear the names they bore before the time of Ælfred, and the Mark may be traced with certainty upon the local information of the labourer on the modern estate. . . ' (*Saxons in England*, I, 246). Cf. O. G. S. Crawford, *ANTIQUITY*, II, 179-80. This fact is the foundation of modern place-name study, as the annual volumes of the English Place-Name Society bear witness.

³¹ Gonner, *Common Land*, pp. 255-8 ; and cf. his various tables and maps (pp. 448-57).

Evolution of the Clinker-built Fishing Lugger

by JAMES HORNELL

ON a recent visit to Rye I had an opportunity to see what is now becoming of rare occurrence in England—the construction of a large fishing lugger on the clinker system of overlapping the upper edge of each plank or strake in the sides by the lower edge of the one above, the two being riveted together at short intervals.

Viewing the boat from a point on the quarter as I entered the shed, it seemed that time had rolled back and that I was looking into the bare hull of a Viking boat! It might well have been a sister ship to that of Gokstad that I saw in the making. The resemblance was increased by the illusive appearance of height possessed by the stem and stern posts, for as yet only the lower part of the hull planking was in place.

The builder explained that he lays down the keel and sets up the stem and stern posts in the ordinary way; thereafter he bends and fits the strakes in position and rivets them together, entirely without the support of any kind of internal framework.

When I first saw the boat, the planking of the bottom was complete and that of the sides to a point just above the turn of the bilge. The upper ends of the stem and stern posts were stayed on each side by a strong batten running to one of the tie-beams in the roof frame above. A different method was employed to hold the keel in place. A stout timber had been nailed transverse to a number of the tie-beams overhead; the keel was laid immediately under and parallel to it. When keel and end-posts had been adjusted in position, three stout props were then inserted vertically between the keel and the timber above and wedged tight. One was placed amidships; each of the others midway between the first and one of the ends.

The next step is to fit and rivet the strakes forming the rather wide bottom. Neither plans nor moulds are made by Sussex boat builders apart from a half-mould used amidships as a guide to curves and to the distances from the axial line at which the strakes are to be adjusted.

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Apart from this guide which is changed from side to side as necessary, the curves of the strakes are fitted by eye alone. After riveting, the principal strakes are held in place and in proper curve temporarily by a number of battens fixed between critical points on the strakes and appropriate points on the beams overhead or on the side of one of the keel props.

The time when the frames are inserted is subject to variation. Some builders used to fit and rivet all the strakes before framing. Others would fit the floor timbers as soon as the turn of the bilge was reached (the plan seen in operation) but even these postpone fitting the ribs until the whole of the skin planking is assembled.

In both instances the type of framing is definitely of the inserted order; it is therefore the direct converse of the carvel type of boat construction where a skeleton of the future boat is first made by building up a complete framework of timbers on which the skin planking is subsequently nailed or bolted. A second distinction is that in a carvel-built boat the strakes are joined edge to edge, forming a seam that has to be caulked afterwards to make it water-tight.

It is a fact of great significance that all boats in the Mediterranean Sea and the Indian Ocean are carvel-built, whereas the clinker-build is found native only in North European seas, with its centre in Scandinavia. The very earliest remains of a clinker-built boat, that of Als in Denmark, date from a time when Bronze Age culture was slowly developing into that of the Iron Age—probably between 500 and 400 B.C. in the case of the Scandinavian tribes. Next in time are the fragments from Halsnø in Norway, now in the Bergen museum; their exact age is uncertain but it is probably considerably earlier than the third century A.D., because the plank fastenings are of fibrous material, whereas metal rivets are present in the Nydam boat which is known to date from the century named.

In later centuries the Vikings remained faithful to the clinker-build for the ships used in their raiding and exploring expeditions. They also adhered to the use of inserted frames like their predecessors.

In all the instances cited and as continued in the Sussex and Kentish fishing luggers of today, evolutionary development is apparent in two directions, namely:—(a) in reduction in the width of the planks forming the skin, and (b) in the method of inserting the frames.

As described elsewhere¹, in all of these except the modern type, the

¹ 'Constructional Parallels in Scandinavian and Oceanic Boat Construction', *The Mariner's Mirror*, vol. XXI, October 1935.

EVOLUTION OF THE CLINKER-BUILT FISHING LUGGER

planks are tied to the frames by means of lashing passed through perforated lugs or comb-cleats left upstanding on the inner side of the various strakes. Apart from actual measurements, the relative width of the planks in the boats of different ages is shown by the number of cleats or lugs in each transverse series upon each plank.

In the Als boat, the garboard strake and the keel or bottom board have five cleats in each series, with three on the upper side strakes. The Halsnø fragments are too incomplete to allow us to say how many cleats the lower strakes had in each series but one fragment had two in its breadth. Two cleats are also characteristic of the Nydam boat, while in the Gokstad and other later Viking ships, a single cleat is all that could be accommodated in the breadth, so narrow had the strakes become. In modern clinker-types, cleats have disappeared; the planks are now through nailed directly to the frames and clenched.

In the Als, Halsnø and Nydam boats the ribs and floor timbers rested flat against the summits of the lug-shaped cleats. In the Gokstad, Oseberg and other Viking ships whereof remains survive, the frames had notches cut at intervals on the lower side in order to fit over the tops of the cleats and so cause the frames to lie closer to the skin-planking; actually the upper and inner edge of each strake was in contact with the frame. In the Sussex boats the floor timbers and sometimes the ribs are shaped to fit the angular surface of the clinker-built skin and are riveted thereto.

Subsequent to the Viking Age, the saw gained ground as against the adze and this appears to have entailed the abandonment of the cleat-attachment system in northern boat-building. By the use of a saw, planks of any required thickness can be obtained far more quickly as compared with an adze. Sawing is also a much more economical method, for where an adze will usually dub out only a single plank from half of a split tree trunk, a saw will supply several. But a saw cannot leave upstanding lugs and this, we may conclude, was the determining factor which brought about the abandonment of cleat attachment.

In the English clinker-built luggers and their near relatives in Scandinavia, the essentials of old Viking boat-building methods still persist. The design of the modern boats constitutes the last phase of a series that was already in existence on the Scandinavian coast 2500 years ago. No series could be more complete and more indicative of the autochthonous origin of the clinker-build system still favoured by the fisherfolk of northern Europe.

If it be conceded that modern clinker-built boats are in direct

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descent from the Als boat-type, this brings us to the problem of how arose the clinker-build characteristic of the whole series. An origin from a raft with built-up sides has been suggested. This may conceivably be the answer so far as Egyptian vessels are concerned, and possibly for the ancient Mediterranean type from which the carvel design has been evolved. But it is quite unacceptable for boats of northern origin. Rafts may be and are widely used in tropic seas, for semi-naked men can there endure continuous soaking for days together as waves wash through their low-lying craft. In the bleak North seas, the exposure entailed by raft-voyaging is usually fatal within a

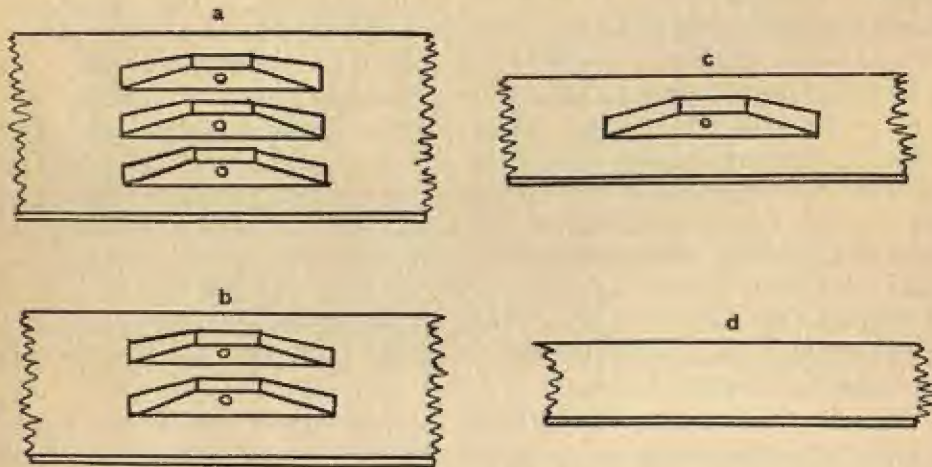


DIAGRAM SHOWING THE PROGRESSIVE REDUCTION IN THE NUMBER OF RIB-CLEATS IN CLINKER-BUILT BOATS

(a) Als boat, top strake, 3 cleats.

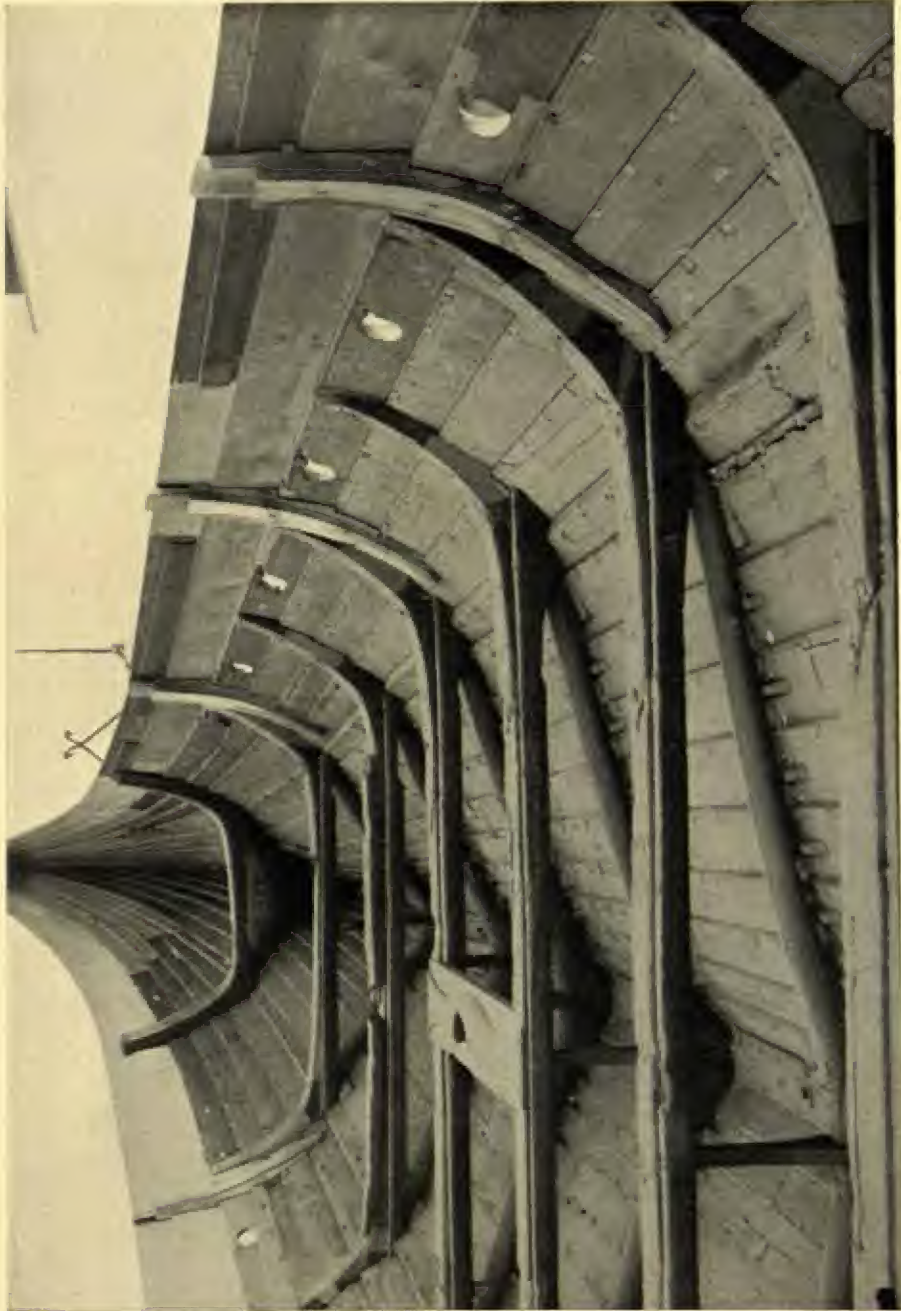
(b) Halsnø and Nydam boats, 2 cleats.

(c) Gokstad boat, 1 cleat.

(d) Sussex lugger, no cleats.

few hours to all but the most hardy except during the short period of warm weather in the height of summer. Hence raft-voyaging has never been practised in the North and we cannot look to the raft as the origin of the clinker-built boat. The source is, in consequence, narrowed down to the dug-out canoe. Here, when need arises for a roomier craft, it is still usual in many localities to add a plank—a wash-strake or a weather-board—to the gunwale of the dug-out. In Oceania this is done by sewing on the added board, carvel-fashion, edge to edge, upon the original gunwale and by closing in the two extremities of the canoe. In Scandinavia, instead of so doing, the Bronze Age people,

PLATE I



GORSTAD SHIP: VIEW LOOKING FORWARD
By courtesy of the Universitets Oldsaksamlng, Oslo

PLATE II



A SUSSEX FISHING LUGGER UNDER CONSTRUCTION, RYE, 1936

The floor timbers were put in *after* the skin planking had been put together up to the turn of the bilge. The two massive timbers in the foreground are the engine bearers, and would not be present in a sailing lugger.

EVOLUTION OF THE CLINKER-BUILT FISHING LUGGER

who lived in colder and stormier seas, appear to have found it preferable as being stronger, to overlap the edges and sew them together in this position—the genesis of the clinker-build.

These early boats, formed by excavating the trunk of a tree, were necessarily rounded in the bottom, without keel. As size increased and longer voyages were embarked upon, the dug-out region, the underbody of the craft, shrank in width concurrently with increase in the number of strakes in the sides. In the Als boat the dug-out had shrunk to a broad plank, with two strakes forming each side; in the Nydam boat the keel plank is still narrower and on the under side a broad, low projection has developed, while the side planks have increased to five. Then in the Gokstad, Oseberg and all subsequent boats the basal plank is transformed into a true keel, narrow and markedly salient, with very narrow side-strakes.

From the foregoing facts the inference emerges that modern European vessels are not monogenetic. At least two independent origins must be postulated and, as I have mentioned, the probability is that certain of the carvel-built type are derived from the raft—either the papyrus raft of Ancient Egypt or the log-catamaran of South India. Conversely the clinker type is the offspring of the dug-out canoe, born in the forests of the North where trunks of huge size were once abundant.

Finally I have to point out that the distinction between (a) boats in which the skin planking is nailed upon a pre-assembled framework, and (b) those where the frames are inserted after the shell has been put together is a consideration of fundamental importance in the study of boat origins and evolution. Unfortunately it is comparatively rare to find details on record of the characteristics distinguishing the methods of construction of local types. An instance in point is the ignorance that prevailed until recently of how the framework of Welsh coracles is put together in different localities.² By neglect of investigation in this direction, valuable indications of origin and descent may be lost.

² See Hornell on 'British Coracles', in *The Mariner's Mirror* for January and July 1936.

Notes and News

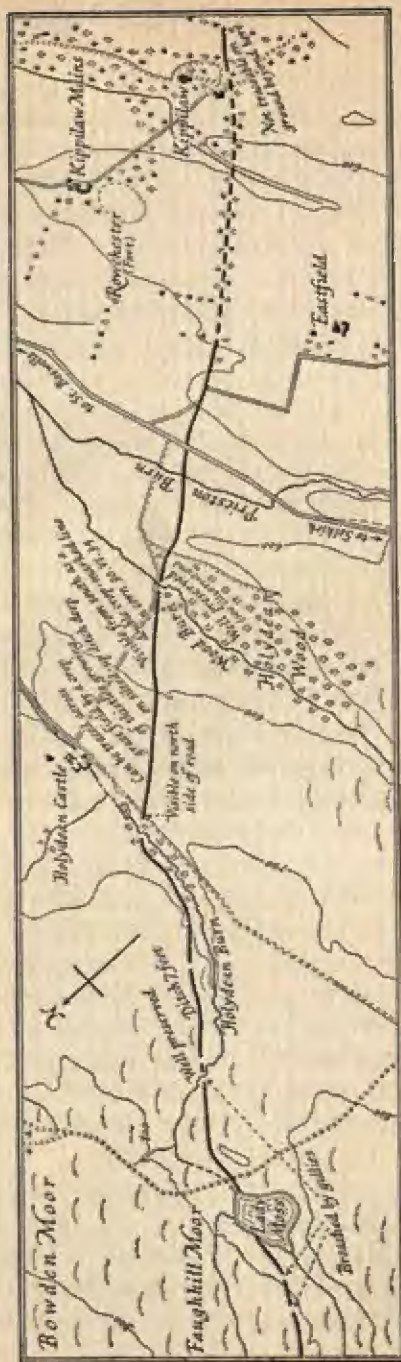
DEFENSIVE FRONTIER-DYKE NEAR MELROSE (PLATE 1)

In the *New Statistical Account of Scotland*, 1845, III, 38-9, the following lines appear :—

‘The remains of a military road, with circular stations or camps, at the distance of from two to three miles from each other, supposed to be Roman, can be traced across the centre of the parish, in a line from southeast to northwest. In some places all vestiges of it are destroyed by the plough, but in other places it can be easily traced in the form of a large ditch, about twenty feet wide, and in a few spots, of two ditches of that width, and about fifty feet distant from each other. The camps or stations are all on eminences in view of each other ; and warlike instruments of various descriptions have been dug up by people ploughing and ditching around them, as well as in the adjacent mosses’.

Following this description the Ordnance Survey adopted the term ‘Military Way’ and inserted the course of the earthwork on Sheet N8 of Roxburghshire. I investigated the course of this road in June 1934, and again in March 1935. I was not able to add more than a few yards to the total course of the earthwork however, and I doubt whether any further extension of it in a northwesterly direction can be traced. Southeastwards air-photography might throw light on a possible extension.

The earthwork is not a road at all, but a defensive frontier of a kind that is familiar to us in the South of England, though in execution this earthwork differs from any that I know there, or anywhere else. It consists for the most part, wherever it is sufficiently well preserved to be sure of it, of two banks and three ditches. The ditches are on the southwest side of the banks, so that the earthwork must have been made by people who lived to the northeast of it, and the frontier faces therefore southwest. It seems to begin at the head of a very steep-sided valley at Faldonside, called the Lynn, running into the Tweed, 1100 yards above Abbotsford, but there are no certain traces of it until you



Scale of Yards
500 0 500 1000

Contours in feet

COURSE OF DEFENSIVE FRONTIER NEAR MELROSE
Based upon Ordnance Survey Maps, by permission of H.M. Stationery Office

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come to Cauldshiels loch. It seems highly probable however that it followed the line of the county boundary between the loch and the Tweed, taking Faldonside loch on its way over Faldonside moor. It is well preserved between Cauldshiels loch and Cauldshiels hill. Here it consists of a stony bank between two ditches and has been ploughed at some time (PLATE I). This is actually the most northerly point where it can be seen. It runs to the foot of the steep hill and does not seem to have been continued over the brow of the hill through the quarry; but it begins again immediately south of the quarry and can be traced quite clearly across the fields to the south. It is obvious here that it was made by people living to the northeast of it, since it runs along the brow of a steep slope down which it may be said to look. It also includes a fort on the top of the hill, which may have been used about the time of its construction. Over Faughhill moor it is very well preserved. It makes use of a large mere called Lady Moss and begins again on the eastern shores. It then crosses Holydean burn and is very plainly visible on the north side of the track running parallel to the stream on the south side. Across the next field it can be traced by a thick growth of thistles, though the ditch itself has been completely silted up. In the field immediately to the north of Wood burn, which has been ploughed quite flat, it can be seen quite plainly from the hill to the south as a double crop-mark in the corn. It appears as two parallel bands of darker green colour. As it descends the hill from Wood burn it is excellently preserved, and it is plainly visible across the Prieston burn on the road from Selkirk to St. Boswells. The last visible trace of it are in the grounds of Kippilaw, where it is marked on the Ordnance map. After this it enters an area of former and present arable, beyond which I was unable to see any signs of it.

It should be mentioned that there is a fort at Rowchester, near Kippilaw, also on the northeast side of the dyke.

The total length of the preserved portion of the dyke is a little over three miles, and it is more than a mile from the last visible remains of it at the north end of the Tweed. It may originally therefore have been nearly five miles in length.

Its general line is across the western spur of the Eildon range; and it may be suggested that it was constructed as a defensive frontier by the inhabitants of the fort on Eildon Hill.

At no point in its course has the earthwork the slightest resemblance to Roman workmanship, and this explanation can be entirely eliminated. Except for a portion north of Cauldshiels hill the dyke nowhere follows

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a really straight course, but winds irregularly across the moor. In this respect it differs entirely from the Cleaven dyke, near Meikleour, in Perthshire, which runs straight as a Roman road across the country between the Isla river and some undetermined point further west. It resembles most closely some portions of the Black Pig's dyke in Ireland. The Black Pig's dyke, like it, uses lakes as bounds in its course. It may be suggested that both were barbaric imitations of the Roman walls made by natives, who had either seen one of them or heard about them by repute.

O.G.S.C.

AIR- AND GROUND-PHOTOGRAPHY (PLATES II-III)

The question is often asked—Is it possible from the ground to see anything of the crop-sites recorded from above by air-photography? The answer is usually a qualified 'yes'; you can see the crop-markings quite well from the ground, if you can find a suitable elevation near by. There is no magic in either the camera or the overhead view; it is merely the distance above and the view-point that matters. On the other hand, to see a crop-site that has been discovered from the air it is of course desirable to visit it (on the ground) as soon afterwards as possible. The crop-contrasts change rapidly; and of course after the crop has been cut the image, now visible only in the stubble, may become much fainter—though, being lower, easier to get a view of.

The two plates (II-III) illustrate this very well. The first is an oblique air-photograph taken by Major Allen on 26 May 1935, and shows a barrow-circle and other dark markings discovered by him on that occasion near Ogbourne St. George, Wilts (23 sw). The circle, representing the silted-up ditch of a large barrow, is shown as an unbroken black ring, within which are certain faint black spots suggesting cists. The second was taken on the ground a week later. The circle is plainly visible though the colour-contrast is less evident (perhaps for photographic reasons). It is here that the greater height of the corn growing over the ditch is seen.

With a little practice it is possible to spot crop-marks quite easily from the train or car. One cannot always be sure what they represent, but one can at any rate mark the site down for air-photography. Unfortunately there exists no organization by means of which sites thus spotted can be photographed during the short time after discovery that they remain visible.

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A VOTIVE OFFERING TO ODYSSEUS

In 1930 a very interesting terracotta fragment was found in the excavations conducted by the British School at Athens, in Polis Bay, on the Island of Ithaca. It is one of a series of about 100 female masks to be dated by their style¹ to the first or second centuries B.C. 'Εὐχὴν Ὀδύσσει is incised down the side, 'A votive offering to Odysseus'. Across the neck of the goddess there remains ^H which I restore in the usual formula $\begin{bmatrix} \text{ὃ δὲ ἴνα ἀνέθ} \\ \text{κε} \end{bmatrix} \begin{matrix} \text{H} \\ \text{N} \end{matrix}$ 'so and so dedicated it'. The style of the writing suits the date² attributed to the terracottas. It cannot be much later than the first century A.D. and nothing later than the first century has been found in the excavation. The sherd was found above sea-level in an unstratified part of the deposit.

There is evidence that the site is a fallen-in cave. Dedications on vases and terracottas of the second and third centuries B.C. show that it was then a shrine and connected both with Odysseus and the nymphs. Part of a pavement in a late Mycenaean layer suggests that the cave may have been a shrine as early as the twelfth century, and as the chain of offerings is unbroken from that date till the destruction of the cave, the shrine may have been connected with Odysseus throughout its history.

Tripod cauldrons of beautiful workmanship belonging to the eighth and ninth centuries B.C. show the importance of the shrine in what is generally thought to be the period of the Homeric poems. Rhodian geometric vases certainly at Aetos,³ another shrine in Ithaca, perhaps also at Polis, show a connexion between East Greece and Ithaca. The fame of this shrine at Polis must have reached eastern Greece and may have inspired the description of the cave of the nymphs.

Excavation cannot be expected to solve literary problems, but it has discovered a suitable site for Homer's cave of the nymphs and increased the probability that modern Ithaca is the prototype of Homer's Ithaca.

I have to thank the Committee of the British School and Mr Heurtley, the Director of the excavations in Ithaca, for permission to publish this sherd before the appearance of the official publication.

SYLVIA BENTON.

¹ One similar to the inscribed mask is figured by Volgraff *B.C.H.* 1905, fig. 11. Cf. also *id.* fig. 12.

² For this information I am indebted to Prof. M. N. Tod. He also suggested this translation for the inscription.

³ I owe this information to the kindness of Mr C. M. Robertson.

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ARCHAEOLOGICAL PHOTOGRAPHY (PLATES IV-V)

At the suggestion of several friends I propose to set down from time to time a few notes on photography arising for the most part out of practical experience. It must be stated at the outset, and with some emphasis, that I do not pretend to possess expert knowledge of photography, or any theoretical background. This may however be an advantage, since few of my readers will possess it either, and what they want to know are the simpler things, such as lighting—if one may judge by results!

The camera I am now using is a Rolleiflex which takes 12 exposures on a spool, the size of each being 6×6 cm. ($2\frac{1}{4}$ inches). This camera has the very great advantage of enabling one to see, on a ground glass screen, the exact picture one will get, and also of enabling one to focus it thus visually. Thus the range of subjects is increased (especially for subjects at 7 yards or nearer). With my previous camera, a Vogtlander, I got very good results indeed for several years, especially landscapes; but for anything less than 7 yards distant it was necessary to rely upon a focussing-scale, which involved careful measurements. Close-ups of moving subjects were thus almost impossible. Close-ups of inscribed stones were a long and tiresome business and not always successful, for at close range one might easily fail to include the whole of the object on the picture, or make a slight error in focussing.

I always use Agfa films, which I believe to be the best. In choosing cameras and films I bear in mind the saying of Socrates that the *ἀρετή* of a shoe-maker is to make good shoes, and act accordingly. All other considerations are irrelevant.

With a Rolleiflex a tripod is seldom required, though it is useful when a number of similar movable objects have to be photographed in succession, as it saves focussing each time. Personally I use a folding wooden plane-table tripod, whose legs can be screwed at any angle and do not vibrate in wind. For this reason metal tripods are generally quite useless: the camera vibrates in the wind like a big liner crossing the Atlantic.

Perhaps the most important element in obtaining a good picture is the lighting. I do not mean the intensity (though this matters), but the angle. Whether you are photographing earthworks—which are exceedingly difficult subjects—or inscribed stones, success depends in the first instance upon the lighting. Both are corrugated surfaces, one side of which is in shade when the sun is shining—and it is seldom

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any good photographing them at all when it is not. That is why air-photographs of earthworks of low elevation have to be taken early or later in the day, when the shadows are long (for examples see 'Air-photography for Archaeologists', Ordnance Survey Professional Paper). In taking oblique air-photographs Major Allen found that there was, in every case, one view-point which gave the best results—usually the one looking into the sun. That is because, from that view-point, you are looking at the shadow-side of every corrugation, with the lighted side visible beyond it by way of contrast. Some of the best ground-snaps are those taken into the sun; but one must shade the lens, so that the sun does not fall directly upon it, causing reflections and fog.

Precisely the same principles apply to the photography of an inscribed or sculptured stone. If it is fixed you must photograph it when the sun's rays are shining at a very oblique angle to the incised surface. It is no good photographing it when the sun is dead in front (*i.e.* at mid-day when the surface faces due south—unless you are on the equator). It is also no good abusing the stone if it gives you nothing on a rainy day, you must just go again. Some stones (the Bewcastle Cross, for instance) may require more than one visit, but the results will repay the trouble. The accompanying two photographs of the Castle Dor (or Menabilly) stone, near Fowey, Cornwall, were taken within a few minutes of each other from the same spot—PLATE IV with the sun out; PLATE V with the sun in. On one the inscription (a difficult one) can plainly be seen; on the other it is quite invisible. The stone is of granite.

In many instances success demands infinite patience and perseverance. Indeed successful photography is due more to these qualities than to any profound expert skill or knowledge, though naturally these are all to the good. To them one might add the habit of observation, enabling one to know the best time to take a given subject. In excavation, the side of a cutting will show much more in certain lights and from certain angles than from others. Here again the angle of incidence of the sun's rays upon the side of the cutting is often the determining factor; but damp or dryness also affect it.

Other aspects of photography (including that presented to an editor) will be dealt with in future numbers, if these notes are found useful by readers. Criticisms and suggestions are invited. I conclude by again reminding readers that these notes are by an amateur, for amateurs.

O.G.S.C.

PLATE I



THE SO-CALLED 'MILITARY WAY' NEAR MELOSE, IN WHAT WAS ONCE HOLYDEAN WOOD,
CROSSING WOOD BURN, LOOKING SOUTH, 29 June 1934. (See p. 340)

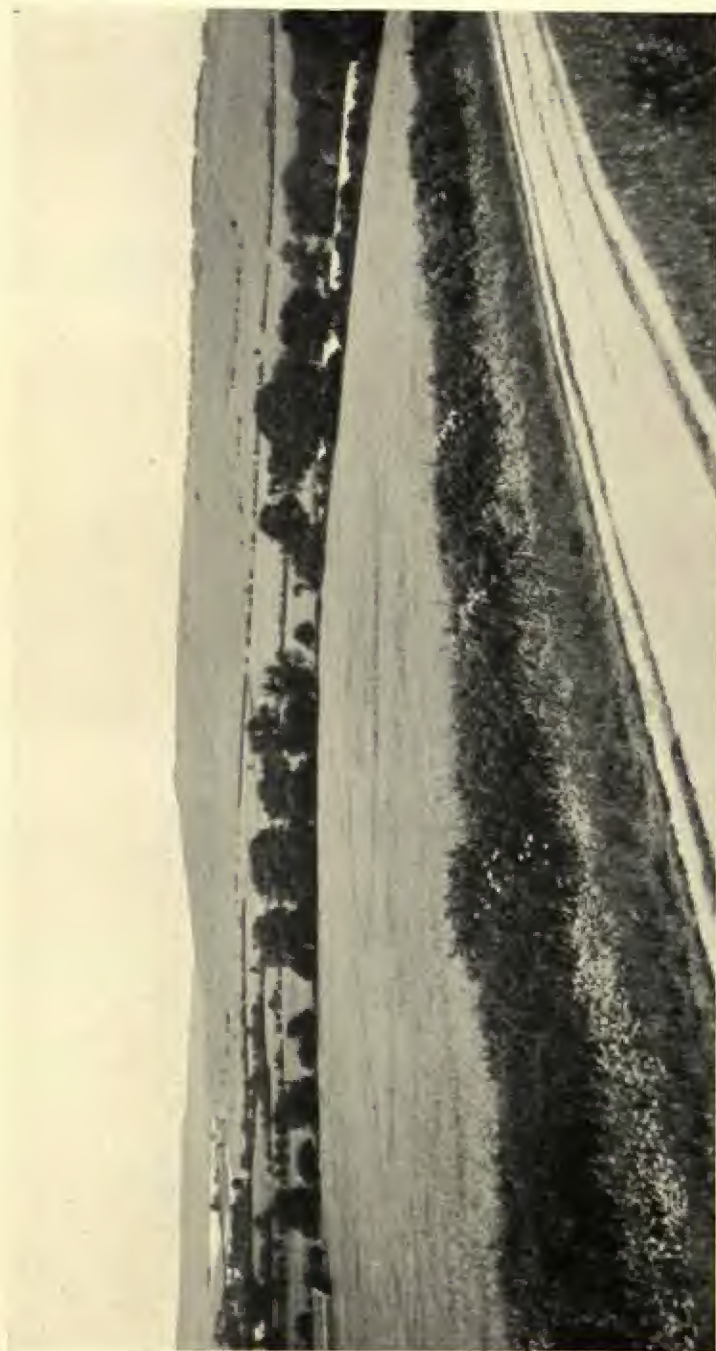
ph. O. G. S. Crawford

PLATE II



CROP-CIRCLE AND OTHER MARKINGS, OGDORNE ST. GEORGE, WILTS. (See p. 340)
Air-ph. Major G. W. G. Allen, 26 May 1935

PLATE III



FIELD OF CORN AT OGDOUNE ST. GEORGE, WILTS, SHOWING GROUND-VIEW OF A CROP-CIRCLE. (See p. 349)
(compare plate II)

Ph. Major G. W. G. Allen, 2 June 1935

PLATE IV



CASTLE DOR (OR MENABILLY) STONE, NEAR FOWEY, CORNWALL
taken in sunlight. (See p. 332)
Pl. O. G. S. Crawford

PLATE V



CASTLE DOR (OR MENABILLY) STONE, NEAR FOWEY, CORNWALL
taken with the sun in, a few minutes after plate iv. (See p. 332)

Pl. O. G. S. Crawford

PLATE VII



THE STORY OF THE RATS; AN EXAMPLE OF NATIVE BAMOUN ART. (See p. 151)

P. Max Müller

PLATE VIII



FIG. 1

MODEL OF INCA BULL-DOG WITH CROPPED EARS
AND UNDIVIDED UPPER LIP, FROM PACASMAYO
Found by the Frankfurt Bolivian Expedition (R. N. Wegner)
and now at the Institut für landwirtschaftliche Zoologie of
Berlin University. (See p. 358)
Ph. W. Glaumacher



FIG. 2

MODEL OF INCA BULL-DOG WITH UNCROPPED EARS, DIVIDED UPPER LIP AND NOSE,
FROM TRUJILLO
Found by the Frankfurt Bolivian Expedition, 1927-9, led by R. N. Wegner
Ph. W. Glaumacher

THE STORY OF THE YOUNG RAT (PLATES VI-VII)

In a recent number of *ANTIQUITY* (Dec. 1935, ix, 435-442) we published an account of the writing invented by Sultan Njoya. A copy of this was despatched to the reigning Sultan at Fumban,* French Cameroon. In due course a reply was received from the Sultan enclosing an original copy of the Story of the Young Rat, illustrated by coloured drawings. These are an excellent example of a live folk-art, apparently uninfluenced by any external art; but in any case alive and vigorous. We publish them both herewith: the folk-tale has been translated from the French translation supplied. We are extremely grateful to His Highness for sending us this most interesting tale and its accompanying illustrations.

THE TALE OF THE RAT AND HER FOUR CHILDREN

A rat had four children. Of these four children three were good and one bad. She went out for a walk with them. She came to a great river and made the three good ones cross it, leaving the bad one behind. He remained there, and asked a traveller to take him across the river. The traveller was rude to him and said: 'What, has your mother taken all your brothers across and left you for me to come and carry you?' He went away. All those who passed that way gave the same reply to the young rat. At last there came a traveller who took pity on the unhappy one and took him across the river. The ugly young rat followed his benefactor, who was travelling to do business in a far country. When the merchant reached the market-place whither he was going, he left the young rat there and it could not find him again. The ugly rat went to a hut, climbed on the roof and killed a mouse, then he skinned him and made a tom-tom which he covered with its skin. Then he climbed a tree in the middle of the market-place taking his tom-tom with him. He beat his tom-tom saying: 'Where can I find the man who has just escaped from me?' Many people gathered round the ugly rat to look at him; then the man who had accompanied the young rat came in his turn to look at the tom-tom. When he arrived in the middle of the crowd, the young rat recognized him, dropped his tom-tom and rushed up to him, saying: 'There's my man'. The man answered - 'Ha! you creature, are you fated never to leave me? Get off my neck and go away'! The rat refused.

* Lat. 5° 40' N. Long. 10° 50' E.

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The man was angry and departed with the young rat on his neck. When he reached the river he seized the young rat by the neck and threw him into the river. The current carried him into a fish-trap. He died, decomposed, and only his head was left. When the owner of the fish-trap came to inspect it, he saw the young rat's head which muttered : ' Come here and see what the son of the king of the Great Heads can do '. The man was not alarmed and went to take his fish-trap. The rat's head said again : ' Take me out and you will see what the son of the king of the Great Heads can do '. The man took it out and carried it back to his hut. When he got there, the head said to him again : ' Cut me up and see what the son of the king of the Great Heads can do '. The man struck the head of the young rat with his knife. He gave it to his wife who cooked it with maize-bread. While being eaten, the rat's head said to the woman : ' Do not swallow my bones ; collect them all afterwards and throw them on the dung-heap '. The woman obeyed and did as the rat's head had ordered. Her husband swallowed all the bones. Afterwards he had need to retire, but for several days without effect. As he was striving there passed out a big dog. He was not alarmed ; he called the dog to him and went off hunting with it. It was a good hunting-dog. The dog was well fed ; he caught all kinds of animals, from elephants to the smallest game. The man sold the flesh of the animals, grew rich and became a big merchant.

A part of the skull of the young rat which the man's wife had thrown on the midden produced several kinds of calabash. When these ripened the man went with his wife and emptied them into the stream. His wife made saucers and oil-flasks of some of them ; he made wine-flasks out of the rest. The woman had a baby. The man and his wife owned an orchard. The season of husbandry arrived. They left some food with their child's keeper, so that he might give it to the child later. A moment afterwards the keeper wished to give the child food. But the calabashes, the saucers, the oil-flasks and cups came down from the pegs on which they were hung and turned into young rats, they seized the keeper's food and ate it. They went back and hung themselves up again. When the man and his wife came back from the plantation, the keeper narrated what had happened, but they would not believe him. They said it was he who had eaten the child's food and that he was a liar. They proposed to hide themselves so as to find out whether the keeper's story was true. He accepted the offer and told them to get on with it. They hid and saw the calabashes get off their

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pegs and act as the child's guardian had described. They came out and prevented the calabashes as one prevents human beings, yes, really. They broke them all. A piece of the calabashes got into the head of the woman's husband and stuck in it. They tried in vain to remove it. The fragment began to cry out in the man's head, 'Kpame ninga ninga! Kpame ninga ninga ninga!' in an untiring fashion until the man had a head-ache; the man called that 'Pa ngé shi' (his finery).

He went about everywhere accompanied by this interminable refrain. He betook himself to the country of the Bamilékés, to trade there. When he arrived there, the Bamilékés took it to be a fine piece of music and collected round the man with the piece of singing calabash in his head. A Bamiléké was much interested in it and asked the Bamoun to exchange his music for a boss which he had on his forehead. The Bamoun agreed, but only on the condition that the Bamiléké should give something else in addition, as his music was very valuable. Several Bamilékés urged their comrade to agree to hand over a large sum to the Bamoun to get his music, for they too would support him by adding their contribution; later they would come in their turn and borrow the music. After discussion the Bamilékés handed over a large sum to their fellow-countryman who in turn handed it over to the Bamoun. The latter first had his wealth conveyed home by his Bamoun fellows. After two days the Bamoun told the Bamiléké to hit his head. Then the piece of calabash passed to the head of the Bamiléké and the boss to the head of the Bamoun. The head of the latter was no longer bad. The piece of calabash began to sing in the head of the Bamiléké and started his head aching. The Bamoun had already gone off with his boss and was far away. The Bamiléké grew impatient and called out to the Bamoun to come back and fetch his music and to give him back his boss. But in vain; the thing remained in his head. The story is ended.

EARLY IRON IN EGYPT

In his article on 'The Coming of Iron' in *ANTIQUITY* for March 1936 (x, 5-24), Mr G. A. Wainwright draws attention to the pieces of iron from the Great Pyramid (ivth Dynasty)¹ and Abydos (vith Dynasty).² These should date respectively from c.2900 and c. 2500 B.C. (pp. 8-9), and form the two major items in the serious evidence

¹ Vyse, *The Pyramids of Gizeh*, 1, 275-6.

² Petrie, *Abydos*, II, 33.

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for the use of iron in Egypt before the New Kingdom. His question is whether they are of terrestrial or meteoric origin, with the rider that if proved by analysis to be terrestrial their claim to be ancient ought to be most critically regarded. Meteoric origin (p. 7) will be proved by the presence of nickel, probably from 5 to 10 per cent., for this is absent from iron smelted from terrestrial ore.

Both these pieces are in the British Museum. Mr Wainwright states (p. 9) that 'full analyses have not yet been made' of them, 'but those which have showed "traces" of nickel'; the authority he quotes being a letter written in 1927 to the Editor of *Man* by Dr. T. A. Rickard. This letter (*Man*, 1927, 56) stresses the unlikelihood of any but a meteoric origin for early pieces of iron, and urges examination for nickel to prove this: it states that in fact both these pieces 'were tested recently, at my suggestion, for nickel, and traces of nickel were found', but expresses dissatisfaction with the experiment.

The tests were actually made in the British Museum Laboratory, and since it seems desirable that the matter should be cleared up, Dr. H. J. Plenderleith, who did the work, has kindly allowed me to see his notes and copies of his reports. The Pyramid piece was found to consist 'of a thin film of metallic iron with a more or less thick coating of its oxides'. Samples were examined, and 'no nickel could be detected'. This was in November 1926; in April 1932 it was examined again, and the results 'completely bear out the findings of the previous analytical report as regards the absence of nickel'; separate tests were applied to the exterior scale and to the surface of the metallic iron itself, and nowhere could nickel be detected. As Dr. Plenderleith was advised that 'all known meteoric iron contains some nickel, about 4-30 per cent', he considered it 'unnecessary to go any further in the matter of chemical investigation'. The account of the result quoted from *Man* (cf. also Dr. Rickard's *Man and Metals* 1932, II, 834) seems therefore to have misled Mr Wainwright. The Pyramid piece contains no detectable 'traces' of nickel. With the Abydos piece the case is only slightly different. The lump (figured with the associated copper objects in B.M. *Bronze Age Guide* (1920), 172, FIG. 185) consists of a black crystalline core surrounded by a thick layer of rust: Dr. Plenderleith reported (in November 1926) that the former consisted 'almost entirely of the oxides of iron. The only impurity detected was a trace of phosphate. No nickel was found'. The rust, examined separately, 'is composed largely of oxides of iron and sand. It also contains traces of phosphate, sulphur, and carbon, with a notable

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quantity of copper ' (the latter comes from the flat copper plate on to which the lump had rusted, as shown in the *Guide* figure); further, ' a very careful examination was made for nickel, which was found present, in two different samples, in minute traces only '. It may safely be said that this piece, whose VIIth Dynasty age has not been disputed, is not of meteoric origin either, for there is no nickel in the core, and it is only present in minute traces in the outer rust, among various other impurities, whose presence is evidently due to the porous nature of that material.

Unfortunately, in the account of this test published by the Society of Antiquaries, in the form of a note in the *Antiquaries Journal* (VII, 193), the descriptions of the core and of the rust were accidentally transposed, so that the impurities of the latter are wrongly attributed to the former, and it is desirable to call attention to this slip, though Mr Wainwright's article does not refer to the note in question.

In fact, the evidence of Dr. Plenderleith's reports is surely conclusive: neither the Pyramid nor the Abydos piece is of meteoric iron. It seems hardly necessary to explain away the former (with Rickard and Wilkinson) as a fragment from an excavating workman's tool, whatever the truth about the enigmatic Nubian spearhead (Mr Wainwright's pp. 9-11); the Abydos date is certain, and the 28th century B.C. is equally certain for the smelted iron dagger-blade from Tell Asmar, Mesopotamia (his pp. 7-8). The above notes, with a full covering letter of explanation, have been submitted to Professor Cecil H. Desch, of the National Physical Laboratory. He has expressed his opinion, in a letter kindly communicated to the writer, that the position is ' very clear, and it does not seem necessary to make further analyses '. ' I gather ' he goes on, ' that the crust on the outside of the Abydos specimen contained a good deal of copper (see above), and the trace of nickel which was found may very well have come from that. I have now obtained further specimens of early iron, which is certainly not meteoritic, from sites in Mesopotamia and Syria, and it will be very interesting if it should prove that equally early specimens occur in Egypt. As regards the Pyramid specimen, the statement that it consists of only a thin film of iron with a layer of oxide outside seems to rule out the possibility of its being a modern tool which had fallen into a cavity, and it is very desirable that your note should be published '.

It seems, then, that these pieces may reasonably be taken as evidence for the occasional smelting of terrestrial iron-ores in the Near East as early as the third millennium B.C.

CHRISTOPHER HAWKES.

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SHEEP

Mr Miles Burkitt writes :—

‘ Professor Max Hilzheimer’s article on sheep which appears in the June number of *ANTIQUITY* is very interesting, but in fairness to the late Professor Cossar Ewart of Edinburgh, I feel that one must take exception to the opening paragraph, which stresses the *recent* work done on this subject. Most of what appears will be found in Cossar Ewart’s articles on various domestic animals which appeared as long ago as 1913 and 1914. It is true that the Professor buried his “diamonds” in, to archaeologists, the unknown “blue ground” of the “Transactions of the Highland and Agricultural Society of Scotland”; but in my own *Our Early Ancestors* (1926) his conclusions are largely set forth with due acknowledgments. I do not mean, of course, to imply that there has been any plagiarism—merely that it is a great pity that so much recent research work has been spent on what Cossar Ewart so ably set forth no less than 23 years ago. For instance Professor Hilzheimer spends some time in flogging a dead horse when he enlarges on the reasons why the turbary sheep can hardly be a descendant of the Argali. All this has been discussed long ago by Ewart and others, and in my own book, just referred to, its ancestry is suggested as Urial—*i.e.*, Vignei. Naturally no two accounts of such a subject are complete duplicates, and there are details in each which do not appear in the other: the Mesopotamian illustrations were unknown in 1913. But the honour for the pioneer work of this nature on domestic animals properly belongs to the late Professor Cossar Ewart. Another eminent Briton, Sir Alfred Pease, has also engaged in research in the greatest detail into the pedigrees of both domestic sheep and horses ’.

THE INCA BULL-DOG (PLATE VIII)

About 50 years ago great surprise was caused in zoological circles by the identification, amongst the animal remains recovered by Reiss and Stöbel in the cemetery of Ancon in Peru, of a breed of dog whose skull and other bones, especially the extremities, had the closest affinities with those of a small bull-dog. Since then further remains have come to light, including mummified specimens. Hitherto, however, we have been content to establish anatomical similarities without puzzling over the appearance of this remarkable breed (beyond its head). It was accepted that it must have looked like the English bull-dog.

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Now the Frankfurt Bolivian expedition (1927-9), led by Richard N. Wegner, has brought back a number of vases (of the 'black-ware' type) portraying this bull-dog in a very naturalistic style. They show that we are concerned with a small elongated animal with a big head and erect 'bat's-ears', which finds its closest parallel in the French dwarf bull-dog. The resemblance is positively amazing, as may be seen from numerous instances. Many 'defects' can be observed, as with our bull-dogs—the divided nose, with which goes the divided lips leaving the upper lip and teeth free, the concave nasal bridge, etc. All these features were recorded with the greatest fidelity by the old Peruvian artists who, by indicating them on several models, have provided us with a real portrait of the dogs. When, moreover, we find that some of these models have short ears and some long, we are justified in regarding the portraits as faithful ones, and in concluding that the ancient Peruvians sometimes represented individual dogs.

Hitherto, however, these dog-models are recorded exclusively from northern Peru. They thus appear to be confined to the Chimú culture-circle, where they seem to have some connexion with a fertility-cult. This I infer from the fact that, in lying models, the hindquarters are twisted round into a rather unnatural position, so as to show the sex-organs, and that females with young are frequently represented.

Osteological research reveals certain points of difference between these American bull-dogs and the European breed; from which it follows that the one has not developed out of the other and that the ancient Peruvian constitutes a unique breed of its own. This breed, which is found only in the pre-Columbian period, is to-day extinct.

MAX HILZHEIMER.

THE SOAY SHEEP (PLATE IX)

An unfortunate mistake (which the translator regrets) crept into Dr Hilzheimer's article on Sheep in the June number of *ANTIQUITY*. The animal there shown (PLATE IV) is not, as stated, a representative of the European breed of wild sheep, *i.e.* the Mouflon, but is a Soay sheep. Dr Hilzheimer writes:—

'While this breed is in very close relation to the wild sheep, it also resembles the oldest European domestic breed, the Turbary. In this lies the special interest of the Soaysheep, which certainly is a survival of the very earliest period of breeding. The resemblance between the modern animal and its Stone Age counterpart may be realized by

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comparing the photograph in my article of a Soay ram with that of the neolithic clay-figure. The former is represented in profile, bringing out the long sunken features peculiar to the wild sheep : the non-specialist would perhaps be better able to compare them by seeing a frontal view, as then the similarity of the horn-formation is still more striking. This is shown by the photograph (PLATE IX) taken recently by Mr O. G. S. Crawford near Tarbert, Isle of Harris, in the Hebrides. The hair on the throat is short because the sheep was photographed in June, when it had already begun to shed its coat.

‘ From what I hear this most important breed is in danger of extinction on account of economic conditions. This would be a great pity, in view of the extreme interest of the Soay sheep, which lived in Harris in a completely wild state, owning no master. As far as my knowledge goes there are examples of the Soay in the Zoological Gardens in Edinburgh, Berlin, and Hamburg, but it is doubtful if this will suffice to keep the breed alive. Perhaps some Scottish laird will form a small herd in his game-preserve. This would not involve much trouble or expense ; but it would ensure the existence of this sheep and would be at least as interesting to the sportsman as the Corsican-Sardinian Mouflon, which of late years has been introduced into the Continent. The Soay sheep would have the advantage over it of being more sure-footed ’.

PLATE IX



SOAY SHEEP, NEAR TARBERT, ISLE OF HARRIS, HEBRIDES. (See p. 359)

Ph. O. G. S. Crawford

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

Mr James R. Stewart writes from Afyon Karahissar :—‘ I have been digging (for Cambridge, with the collaboration of the German Archaeological Institute) in a looted necropolis of the Yortan type. Although the looting had been thorough, our results seem quite satisfactory. Here are some of the details.



‘ The site lies near the village of Baba Koy, in the Bigadiç area of the Balikesir vilayat. Burial is invariably in a large red-ware pithos, which very possibly showed above ground, for the pithoi are neatly arranged in lines, rather like a war cemetery. Although single inhumation-burial seems to have been the rule, re-use of pithos was frequent.

‘ The pottery was chiefly of the usual Yortan type. I believe that much of the loot is in European Museums as from Balikesir. However, there is a sprinkling of drab ware occurring in shapes different from the Yortan type—including a goblet on a ring-base, and an idol. We found no red ware, but the peasants reported the existence of a few pieces. Bronze or copper was to us non-existent, but one of the men remembered two copper needles.

‘ We were fortunate enough to get one intact grave, a pot from which gives us a contact with the Early Bronze Age at Vounous in Cyprus (tomb 39) ; so that at long last the period of Yortan ware may be regarded as belonging to the latter half of the third millennium B.C., but perhaps starting a little earlier ’.



Mr E. J. Forsdyke, the new Director of the British Museum, in a most interesting article in *The Times* (22 May), describes the results of recent American excavations at Troy, which have at last settled the point at which the ‘ Achaean moment ’ occurs. He concludes :—

‘ Professor Blegen has already found that the beginning of the Sixth City, hitherto called Mycenaean, goes far back into the Middle Helladic period, before the Mycenaean Age began. The fortress-wall was built after this and the towers were a later addition to the wall.

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About 1300 B.C. this settlement was destroyed and the wall much damaged, apparently by an earthquake, since there is no trace of fire. The Seventh City was an inferior reconstruction of the sixth. The wall was repaired in rougher masonry, the houses irregularly built with odd stones from the ruins. This was Homeric Troy, and it was destroyed by fire about 1200 B.C. The wall still stood; the houses were rebuilt and inhabited presumably by the Achaean conquerors. The final destruction of the fortress came later, in the Dark Age of the Aegean, at a time and by an agency which are not yet determined and of which we have no epic record'.



In a recent lecture Sir Denison Ross, Director of the School of Oriental Studies in London said that Chinese Turkestan, inhabited today mostly by Turki-speaking Muslims, was for centuries regarded as essentially a land of the Turks. Recent discoveries, however, had proved that down to the 8th century it was the home of peoples speaking various Indo-Germanic languages. He recalled the amazing discovery of manuscripts made nearly 40 years ago by Sir Aurel Stein in the Caves of the Thousand Buddhas, near Tun-huang, consisting of thousands of Buddhist and other manuscripts and books. (*Great Britain and the East*, 20 February).



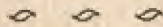
Sir Aurel Stein is proposing to carry out an air-survey of Trans-jordan and part of Iraq, to determine the character of the frontier defences of the Roman Empire there. No finer field for such work exists anywhere, and we hope for the credit of British prestige that he will succeed. The results will be of the greatest scientific value, and will fit nicely into the scheme for a map of the Roman Empire on a scale of 1 : 1,000,000 which is being organized by the Bureau Central of the International Map of the World on the same scale. (*Nature*, 11 July).



Sir Leonard Woolley, in a lecture on 'The Racial Elements in Sumerian Art-history' (published in the *Journal of the Royal Society of Arts*, LXXXIV, 3 April 1936) distinguishes three cultural streams (1) an Asiatic or Iranian, characterized by painted pottery, and prediluvial in age at Ur; (2) an Anatolian; (3) a Syrian. These, he submits,

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correspond to three differentiated physical types in the population. He concludes that the brilliant achievement of Sumerian art, in which these cultural streams unite, was due to that cross-fertilization of racial strains which he maintains lies at the root of all great achievements in the art of a people as a whole. (*Nature*, 11 July).



A correspondent of the *Glasgow Herald* (11 July) has some pertinent remarks of a general nature on a similar subject. After pointing out that 'modern archaeology . . . begins to have a practical and sometimes disquieting bearing upon the problems of the present', he points out that it has revealed 'the illimitable background of human development', in relation to which the period we live in is seen to be merely a stage in a tremendous process, whose end is far out of sight. He asks whether any modern scientific achievement is as important as the discovery of agriculture by neolithic man.

He passes on to the question of 'racial purity' which he rightly discusses as a 'meaningless phrase', the thing never having existed either in the past or present. He concludes with the following sensible reflexions:—

'And if racialism in the light of archaeology appears a myth, what of nationalism? What does "nation" mean? Has a "nation" some fundamental unity which cuts it clearly apart? It is true that a nation does mean something separate and distinct: it is a group bound together by a common history within a limited period of time, sometimes a common language, nearly always a common social organisation, and—what is practically of most importance—a common tradition of sentiment. But, viewed from the archaeological standpoint, a nation is merely a particular phase in the evolution of human groups, as the tribe and the clan have been in the past. So far from representing anything permanent, the nation is in flux under our very eyes.



'Politically the plain lesson of archaeology is that in the past history of humanity intercourse has been fruitful of progress while isolation has produced stagnation and decay. A common stock of cultural tradition has been slowly accumulated by the contribution of all the civilisations of the past. To that common stock the life of any group or "nation" or "race" is related as the branch is to the tree. For any group to deny its common cultural ancestry, to imagine that

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all excellences are its particular prerogative, or to exalt separateness into a creed is folly—and pernicious folly at that’.



Readers of M. Henri Lavachery's interesting article on Easter Island (ANTIQUITY, 1936, IX, 54-60) will be amused to learn from the *Morning Post* (6 April), that the 'mystery of Easter Island' has been solved by the officers of a 'little Chilean naval tanker', who spent 6 days there. Lieutenant Exequiel Rodriguez regards Easter Island as a link connecting the Inca civilization with a 'contemporary Indo-Iranian culture', the island itself being the 'sole remaining speck' of 'the fabled continent of Mu'.



A new Java skull is reported from Modjokerto in that island. It is said to be of a most primitive type. The scientific description of it will be eagerly awaited. (*Evening Standard*, 7 May).



It is very good news indeed to hear that a crannog of the Bronze Age has been found in Ireland, at Knocklappa, co. Clare. The finds include a bronze sword and a bronze gouge. An inhabited site of this period, which should yield quantities of pottery and other objects, should throw a flood of much-needed light upon Irish prehistory. It is to be scientifically excavated. (*Irish Times*, 29 May).



There is no evidence of the presence of rabbits in England before the Norman Conquest. (Guy Dollman in *The Times*, 29 April).



We regret that, in the last number (p. 231) we failed to correct an obvious error. In line four 'Lower Egypt' should of course be 'Upper Egypt', and the author of the words in question informs us that he actually said 'Upper'. He could, of course, never have made such an elementary mistake. But to his reporters, 'Upper' Egypt is the part which comes highest in the map, regardless of the flow of the Nile.



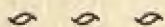
The fort at Kildonald (or Kildonan) on the east coast of Kintyre, in the well-preserved walls of which cells and galleries had been

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noticed, was excavated in June by Mr H. Fairhurst of Glasgow University on behalf of the Kintyre Archaeological Society. The season's preliminary work rendered possible the distinction of at least three architectural periods representing reconstructions of the fine entrance. The relics also amply justify a continuation of the work on a larger scale in 1937.



Mr W. Thorneycroft and Prof. V. G. Childe have excavated the well-known vitrified fort of Rahoy on Loch Teacuis in the Morvern district of Argyll. An early fibula and one of those transitional iron axes that reproduce the form of a socketed bronze axe (the 13th specimen of the type) were recovered and many important geological observations tending to elucidate the process of vitrification were made.



Five books which should interest many readers of this journal have recently been published. Reviews will be published in due course. Meanwhile it is proper to call special attention to them. 'Man makes himself', by Professor Gordon Childe (Watts, 7s 6d), is a supremely good popular account of what the title says. It is the book we have long been waiting for and we doubt whether anyone else alive could have written it. 'The Oxford Dictionary of English Place-names', by Professor Ekwall (Oxford Press, 10s 6d), is a little masterpiece by a master of the subject. Those interested in the derivation of place-names will revel in it. 'An historical geography of England before 1800: fourteen studies, edited by H. C. Darby' (Cambridge Press, 25s), is a book that prehistorians as well as geographers will require. The 87 figures are all map-diagrams, as they should be. It is a book of first-rate quality. 'The ancient burial-mounds of England', by L. V. Grinsell (Methuen, 12s 6d), is a book that has, we think, come to stay, and is one that all open-air archaeologists should get. There is no existing book that covers the same ground. Some short-comings can easily be removed in subsequent editions. Last, in a class by itself, comes the Society of Antiquaries Research Committee's Report on the recent excavations at Verulamium, by Dr and Mrs Mortimer Wheeler (Society of Antiquaries, 15s). Both the Report itself and the work which it describes make us feel proud of British archaeology, and are a poignant reminder of the irreparable gap which the death of Mrs Wheeler leaves in our ranks.

Reviews

THE PALACE OF MINOS AT KNOSSOS: a comparative account of the successive stages of the Early Cretan Civilization as illustrated by the discoveries at Knossos. By SIR ARTHUR EVANS*. Vol. IV, 2 parts. Macmillan and Co., 1935. pp. xxxvi, xvi, 1018, plans and coloured and supplementary plates (1-69) and 966 text-figures. £9 9s.

The first part of the new volume contains sections 90 to 99, the last with a supplement. In § 90 Sir Arthur explains the methods adopted by him in the restoration and reconstruction. In § 91 the bull-sports are discussed and the relation of the Minoan mother-goddess to them. The Toranto goddess is thus introduced and a new stone statuette resembling the Fitzwilliam goddess. In § 92 the discoveries of 1930 on the west of the palace are described; in § 93 MM 1a-MM 11b pottery, especially of the polychrome and barbotine class is considered in detail. § 94 is an interesting essay on the domestic snake cult, which leads up to a discussion (§ 95) of the sacred adder ornament, of a newly emerged statuette of the snake goddess, and of cult objects in § 96. § 97 introduces the controversial question of the date of the 'Treasury of Atreus'; in §§ 98, 99 Sir Arthur draws out with expert knowledge the evolution of ornaments in Palace Style vases, and their successors. A supplement dealing with pedestalled goblets brings the first part to a close.

The second part opens with a discussion (§ 100) of the camp-stool frescoes of the ritual cups of Syrian and oriental connexions in the LM 1 period (§§ 101-2) and of Minoan genii (§ 103). § 104 introduces a new chryselephantine figure, and a discussion on hair-offerings. §§ 105-9 deal with Minoan bead-seals, signet-rings and clay impressions. The subject is fully treated, the classification being based chiefly on Sir Arthur's own collection; of the late seal-impressions a summary catalogue is given, arranged according to find-spots. The last of these sections (109) includes a discussion of the Minoan storage and metrological system. In §§ 110-12 the Minoan script is exhaustively described, and these are supplemented in § 113 by a digression on the Minoan remains at Ras Shamra, which leads up to a full treatment of Minoan chariots, armature and swords. The Last Palatial Age is the subject of §§ 116a, 116b; the layout of the palace after the catastrophe of LM 1b, and as it appeared when the final catastrophe took place about 1400 B.C., being described in detail. The volume closes with an epilogue divided into four parts; the first two deal with the 'ring of Minos', the last two with the Temple Tomb discovered in 1931, and the traces of a late memorial cult associated with it.

The agglutinative arrangement of the material is in conformity with that of previous volumes, and, no doubt, largely unavoidable, owing to the need for keeping pace with fresh discoveries. It is nevertheless unfortunate that details of the excavation should be embedded (rather sparsely) in a series of essays so that they can be extracted only with difficulty. A less subjective treatment, coupled with a more methodical arrangement would have satisfied modern requirements better, and it will be the task of the future to re-arrange the material in a more serviceable form, separate basic facts from their less factual superstructure, give a coherent account of the layout of the palace at

* Volume III was reviewed in *ANTIQUITY* 1931, V, 315.

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each stage, with an inventory of the finds according to their precise find-spots. The essays on the various classes of objects will have to be kept apart from the description of the site, and each class will have to be dealt with comprehensively, through each stage of its history. Only thus will a satisfactory picture of a very complex site be obtained.

So much with regard to the general layout of the material. As regards particular points, Sir Arthur resumes his well-known arguments against Wace's dating of the 'Treasury of Atreus' and, in order to dispose of the evidence of the sherd below the threshold, adds another argument. This sherd, on the analogy of similar fragments of similar bowls found in the lowest levels of the deposit by the Lion Gate was pronounced by Wace to be early LH III (*i.e.* about 1400 B.C.) and thus to confirm the evidence from tests made below the walls of the dromos and from objects found by Stamatakis in the dromos and doorway as to the date of the construction of the tholos. Sir Arthur's new argument is that bowls of this class and with this kind of ornament belong to the very end of LH III (*i.e.* about 1200 B.C.) and that the presence of these bowls (together with certain hydrias which he also believes to be late) show that this deposit is not stratified at all, and is, in fact, an 'inextricable jumble'.

Hutchinson has given some reason for thinking that the deposit was not laid down as early as Wace supposes, but nearer 1300 than 1400; but, even so, it is not surprising that the sherds of El-Amarna type should occur in higher levels, since El-Amarna vases did not cease to be made or exported because El-Amarna ceased to be occupied. There is good evidence that they continued to circulate until the second half of the thirteenth century. If the hydrias are as late as Sir Arthur supposes, then their presence in the lowest levels would be decisive for the unstratified character of the deposit. But are they? For various reasons, I incline to think that the deposit at the Lion Gate belongs mainly to the thirteenth century, to which both the panel and 'close' style should be assigned. The 'close' style fragment in level 1 would not then be out of place.

But if this is so, then the construction of the Tholos must be assigned to the end rather than the beginning of the fourteenth century. For, whatever the date of the sherd, that must also be the date of the construction of the tholos. The evidence of its find-spot cannot be got round by any kind of argument. Do the other objects from the tests and from Stamatakis' excavations conflict with such a date? Not necessarily. The architectural analogies with Knossos are not, by themselves, conclusive. The rosette-triglyph ornament occurs in painted stucco on the porch and court of the Megaron (14th century) and, as the Tirqus signet shows, was current still later. There seems little objection to suppose that it could not be employed architecturally at any time during the fourteenth or thirteenth century, a period during which mainland art, if not static, changed, to judge from the pottery, very gradually. And, if it should be proved that the sherd must be dated as late as 1250, would there be any insuperable objection to dating the tholos to somewhere about the same time?

In his anxiety to do justice to Crete's outstanding contribution to civilization, Sir Arthur fails to appreciate the non-Minoan element in mainland art. This element he just admits for certain objects from the shaft-graves, but not for the stelae themselves. But, whereas it is conceivable that a mainland stone-cutter could have produced the spiraliform ornaments, which, given the models, are merely in question of careful measurement and spacing, it is inconceivable that a Minoan should have produced the figure-scenes. To say that they are the work of Minoan goldsmiths working in an unfamiliar material does not explain the unskilful drawing and composition, nor the rather clumsy arrangement in registers; and the whole group must be regarded as the work of

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mainland masons. The most that can be said is that stele 1 shows an attempt, though a poor one, to imitate a Minoan work of some kind.

Similarly, Sir Arthur declines to recognize a creative element in mainland art. Yet the 'Treasury of Atreus', in spite of the fact that the layout and the ornamental details are ultimately derived from Crete, is, in character, non-Minoan. The proportions of the tomb, especially of the façade with its slim columns are foreign to the Minoan conceptions and genius, and must be placed to the credit of mainland architects. Sir Arthur's preoccupation with Cretan things has also at times obscured his aesthetic judgments. Minoan ceramic art is not uniformly good, and largely owing to a perpetual indecision between naturalizing and formalizing tendencies sometimes sank very low. Some of the vases which Sir Arthur selects for admiration are unworthy of it; the barbotine vases and the vases with plastic shells stuck about them (*e.g.* fig. 83) are peculiar but not beautiful; it is moreover questionable whether the sides of a vase are suitable for anything but formal designs, and the imitation in clay of metal vases is in principle bad and in practice seldom successful.

So, the new stone figurines, even if genuine, are insipid, and the same is true of the Thisbe seals and rings. Why is it that any one of them, inserted among a group of indisputably genuine Minoan gems, etc., at once hits the eye as being out of keeping with the rest? Sir Arthur asks how could the forger of the ring which bears the ritual scene of pouring liquid have had prophetic insight and anticipated discoveries not yet made; one might also ask how could a Minoan craftsman of about 1500 B.C. have represented an event like the murder of Aegisthus, three hundred years or thereabouts before that event occurred? Sir Arthur in fact claims for Minoan civilization more than is its due, and, from the extreme significance he attaches to analogies between Minoan and Christian ritual, almost gives the impression that he would like to derive Christianity itself from a Minoan source. Actually, such analogies do not signify anything except that the available symbols for expressing religious belief are limited and spontaneously repeat themselves.

Smaller points. Does the gaudy headdress of the performers in the bull-ring really indicate a 'good social position' (p. 211)? Is the design in fig. 314b (p. 377) really a double-axe? Has it not occurred unintentionally by the building-in of the space between the loops? Fig. 391 (p. 466); why is the genius essentially of the leonine type? P. 475; was the biretta ever designed to conceal the tonsure? is it not the *Zuchetto*, quite a different article, of which Sir Arthur is thinking? Fig. 512 (p. 522); why a goat?

I noted a few slips, *e.g.* p. 128, pl. XXIX should read pl. XXX; p. 163, fig. 124 is not referred to; p. 207, pl. XLVIII should read pl. XLIX; p. 223, line 2, fig. 172 should read fig. 173; p. 224, under fig. 173, southwest porch should read northwest porch; p. 271, Battiscombe Crumm should read Battiscombe Gunn; p. 279, Dorpfeld should read Dörpfeld; p. 318, note 2, p. 346 should read p. 345; p. 410, note, T. W. Crowfoot should read J. W. Crowfoot; p. 534, fig. 485, MM III should read LM III; p. 535, note 1, archaishe should read archaische; p. 583, line 2, 'the see' should read 'see the'; p. 825, note 1, Paribent should read Paribeni.

Sir Arthur's style is of course distinctive. Even if we are reminded at times of a Papal encyclical and at times, in phrases like 'ceramic department', of a different class of literature, the volume is easily readable, and this readableness is aided by the scale of illustrations, placed, with a thoughtfulness as unusual as it is welcome, in the immediate neighbourhood of that which they illustrate.

An index volume will bring this magnificent work to its close. W. A. HEURTLEY.

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HIERATIC PAPYRI IN THE BRITISH MUSEUM. Third Series. Chester Beatty Gift. Edited by ALAN H. GARDINER. *British Museum*, 1935. Vol. I. Text, pp. xiv and 142. Vol. II, 72 plates in line and 23 collotypes. £4 15s.

The eighteen manuscripts (containing portions of about twice that number of separate texts), Brit. Mus. 10682-10699, here edited for the Trustees by Dr Alan Gardiner, are all but one of a collection acquired a few years back by Mr and Mrs Chester Beatty. That one, the 'Chester Beatty Papyrus I', better known by the title of its most important text, 'The Contendings of Horus and Seth', and edited by the same scholar, has already been reviewed in *ANTIQUITY* (1934, VIII, 240). As it surpassed all the other manuscripts in the collection, both for its size and the interest of its contents, so the remainder of the papyri, coming with it from a single find which can almost certainly be located on the west bank of Thebes (Luxor), constitute by far the finest single group of Late Egyptian hieratic texts which has passed into the possession of any museum since the days of Sallier and Anastasi. This very generous gift of Mr and Mrs Chester Beatty gives the British Museum a superiority over all others, the Egyptian Museum at Cairo not excepted, as a place for the study of the palaeography of New Kingdom literary manuscripts. This point is of such importance to students of Egyptology that the reviewer must be forgiven for labelling the indebtedness of the science to Mr and Mrs Beatty in a non-technical journal.

Other technical matters, of great importance to the specialist, must here be passed over with little more than an acknowledgment of gratitude to the editor. It would hardly be possible to convey to anyone who had not seen the mass of fragments of papyri when they reached Dr Gardiner's hands, the skill and patience and scholarship expended during the three or four years which saw the rehabilitation of the texts as we now have them. During the greater part of that time Dr Gardiner had the assistance of Dr Ibscher of Berlin, who has devoted a lifetime to the reconstruction of damaged papyri. The introduction to this edition eloquently testifies to the dependence of successful results on co-operation in equal measure between the scholar and the technical specialist. The actual publication of the texts required the assistance of a third collaborator in the person of Mr H. W. Fairman, who made the hieroglyphic transcriptions throughout. The remarkable consistency of his copies over 72 folio plates is an added distinction to the work.

The contents of the texts are representative of almost the whole range of literature at present known in Late Egyptian, that is, the written language of the period roughly between 1600 and 700 B.C., though the papyri themselves are assigned by the editor to the probable dates 1280-1160 B.C. A fair selection of perhaps the most typical of all Late Egyptian texts—the Student's Miscellanies—copies of homilies, letters, hymns and excerpts from well-known literary works which formed the basis of the scribe's education—are offered in papyri nos. III to V and XIII to XIX. Many of these are duplicates of passages we already possess, including part of the famous Satire on the Trades and the letter of the scribe Hori which occupies the greater part of Anastasi I. But there is much else which treats the thus familiar themes with a novel touch, and in papyrus IV an idea not found in Egyptian literature occupies over a page of the text: the scribe's profession is exalted at the expense of all others, not because of the material advantages it brings to the scribe while he is alive, but for the fame of his writings with posterity. 'They (the scribes of old) made not unto themselves pyramids of brass,* with tombstones of

* i.e. 'bronze'. Dr Gardiner holds that the spirit of Egyptian literary texts is best reproduced by rendering into the English of the Authorized Version. On this principle he elsewhere translates *hbd* by 'sapphire' instead of 'lapis lazuli'.

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iron. They knew not how to leave heirs that were children (who should ?) pronounce their names. But they made heirs unto themselves of the writings and the books of instruction which they made . . . They are gone, their name is forgotten. (But) writings cause them to be remembered'.

Some important hymns, a book of medical texts, collections of magical spells, fragments of a book of aphrodisiacs, of accounts, of a well-known mythological text, and a fine service-book for the temple of Amen-Rē at Karnak, known from a similar work in Cairo as the Ritual of Amenophis I, make up the bulk of the remaining body of texts. Briefly listed, as they must be here, these titles convey little idea of the amount or variety of new material they contain, both as 'sources' for almost every field of Egyptian studies and as increasing our knowledge of the language; still less of the erudition that has gone to their first interpretation. But in fact they supply an invaluable store of fresh evidence to make full use of which will take many years.

Even so, the two 'plums' of this library of papyri have not yet been mentioned. They are the short but quite unusual 'Story of the Blinding of Truth', and the 'Dream Book', unique so far as Egypt is concerned. 'The Blinding of Truth' is a fairy story, in which Truth and Falsehood are personified as the older and younger brothers, respectively. Dr Gardiner claims that it is 'the earliest example of allegory in the manner of John Bunyan', stressing the allegorical character of the story rather than its origin in folk-lore. He is inclined to minimize the 'miraculous' element in the story; yet surely this alone gives it point. He says: 'The characters of these two brothers correspond to their names, and the entire plot turns upon the antithesis of right and wrong'. But while Falsehood lives up to his name and more also, no evidence is offered by the story (in the incomplete form it has come down to us) of the 'character' of Truth, beyond what is implied in the statement—'Falsehood raised his eyes to look, and he saw the virtue of Truth'. Indeed Truth plays a negative part throughout and it is his son, who avenges him, that is the hero. The plot becomes, as Gardiner says, the familiar one of the Osiris legend; but as in all Egyptian stories with a mythological background right and wrong are set anything but clearly in antithesis; and, as with Homer's, so with the Egyptian gods, human error is as essential to their make-up as divine virtue. The story (as we have it) opens with what appears to us a most unjust condemnation of Truth by the court of the gods; and it closes with the same council making amends for their former sentence because the son of Truth has been able to tell a bigger lie than Falsehood. The name of Truth's son is not given in the papyrus. We should hardly call him Pilgrim.

Finally there is the Dream Book, perhaps the most remarkable document in the whole publication. It consists of a series of short sentences, each of which briefly states a dream and is followed by a verdict 'good' or 'bad', and an explanation, *e.g.* :—

'If a man dreams that he is binding fast baleful men at night, good: taking away his enemies' utterance'.

'If a man dreams that he is munching a cucumber, bad: it means words will arise with him on his being met'.

In the explanation the words 'it means' seem to be inserted or omitted at random. Dr Gardiner sees no attempt at classification of the dreams beyond the categories 'good' and 'bad'. Any enquiry as to how far the dreams may be classified in types known to the modern psychologist would be out of place here, but it is difficult to believe that none of them is based on an elementary understanding of the nature of anxiety dreams and wish-fulfilment dreams.

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This review, begun in gratitude to the original donors of these papyri, must end in gratitude to their editor and to the Trustees of the British Museum for the prompt publication. No other scholar alive today could have given the world, in so short a time, so sure an edition of the text, with translation and sufficient notes to enable the layman to follow the story as well as to help the student of Late Egyptian. S. R. K. GLANVILLE.

YIN AND CHOU RESEARCHES, dedicated to the International Exhibition of Chinese Art, London, 1935-6. Papers from the 'Bulletin of the Museums of Far Eastern Antiquities, Stockholm', nos. 7 and 8, 1935. pp. 223, 90 plates, and many text figures. £3 3s.

First comes Professor Bernhard Karlbeck's epoch-making article 'Yin and Chou in Chinese Bronzes', taking up two-thirds of the book.

The fifteen hundred years of Chinese history covered by the Shang-yin and Chou dynasties have left us famous literature, including for the later times a surprising amount of historical and personal information, but hardly any material remains, just the Yin inscribed bones and shells from An-yang, some carved ivories and stones, some pottery and, by far the most impressive, the bronze vessels. The physical type of the neolithic predecessors survives in the modern Chinese, but the only material survival seems to be that the triple clay vessel with hollow feet may be represented by the bronze tripod called *li*. The art of bronze-casting appears complete, and we do not know where it arose.

To set the chronology of the bronzes upon a definite basis is to render a great service to our knowledge of Chinese antiquity. Karlgren arranges all the inscribed bronzes of which he has illustrations, so far as they are presumably to be referred to Yin and Chou, nearly 900 in number, in two quite independent series, the one arranged by the data he extracts from the inscriptions, the other in accordance with criteria founded upon the shapes and decoration of the vessels. He then points out correspondences between the two series and so arrives at logically established dates. I say 'logically', because in a way that I have not space to reproduce, he provides for and meets all the logical difficulties that arise in such an enquiry.

Reference to this table will make what I have to say more intelligible.

B.C.	EVENTS	CAPITAL	CLASSES OF VESSELS
1766	Accession of Shang Dynasty	An-yang	
1401	Name of Shang superseded by Yin		A
1122	Accession of Chou dynasty, called Western Chou	P'ang in Shen-si	Bi (Bii)
947	Accession of King Kung. Climax of Chou		
770	Troubles. Eastern Chou	Lo-yi in Ho-nan	
	Decay of Chou. Rise of Vassal States		Bi (Bii) CDE
	Spring and Autumn Annals		
481	Period of Warring States. Gradual emergence of Ch'in state		Huai
c.250	End of Chou, supremacy of Ch'in	Near Hsi-an in Shen-si	
206	Han	Ch'ang-an	

The Chinese were in the habit of commemorating events by casting bronzes with inscriptions. The mention of known sovereigns or other persons (given that the

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inscriptions are genuine, and K makes out a good case against undue scepticism) allows him to propose a chronological series (B I, 1-40) attributable to particular reigns of the first five Chou kings (1122-947 B.C.) and another (B II, 78-107) attributable to the next eight (947-770 B.C.): similarity of script lets him ascribe another lot (B I, 41-77) to the first five, and another (B II, 108-152) to the next eight, while certain bronzes (B III, 153-182) can only be generally assigned to Royal Western Chou (1122-770 B.C.). Another class C (1-197) bears mention of various vassal states: as we know when these succumbed in the civil wars we get *terminos ante quos*. Allied to this is class D (1-137) bearing the names of noble families who flourished in the vassal states: C and D are mostly shown to be late Chou, after 770 B.C. by a new custom of choosing lucky days. Class E (1-77) is only dated by the presence of names of the type Chung Shih-fu, very common in B, C and D (otherwise dated): they are shown by the literature to have been used under the earlier Chou, but to have gone out of fashion by 400 B.C.

Finally Karlgren, observing that none of these classes B, C, D, E, all datable to Chou, bear certain signs: *ya* (a cartouche like *ya*=evil), *hsi tsū sun* (=divide? son, grandson) and *kū* (?) refers a whole class (A, 1-337) to Yin times. So he makes up some 900 bronzes of which illustrations of varying quality are available and which bear inscribed indications of their probable dates.

Next working on the illustrations and direct knowledge, he considers what criteria are afforded by the forms and decorative motives, analyzing the casters' repertory of ideas. So he arrives at 69 criteria, what one might call 'points', and looks to see what points occur in the various classes.

He finds 38 points peculiar to 303 out of his 337 bronzes in Class A (34 being unclear and 3 having presumably forged inscriptions). Accordingly he makes the combination of several of these points the sign of a Yin bronze: they agree with the pottery and carved bones from An-yang, definitely Yin.

When he looks at class B I, earlier Chou down to 946 B.C., he finds practically the same points, and only four new ones (e.g. bent handles and the *P'an* basin). That means that Early Chou was practically like Yin: this class he calls Yin-Chou. Half B III comes into it but there are comparatively few pieces from the vassal states (C) and those the central ones near Chou, and few from classes D and E. In all about 116 vessels can be satisfactorily classed as Yin-Chou.

Then suddenly about 950 B.C. comes in quite a new style that he calls Middle Chou with seventeen new points: many old shapes go out, new ones come in, particularly the *chung* bell and the sauce-boat, many old motifs are lost, decoration becomes flatter, the most noticeable new motif is scale-pattern, vertical and horizontal. In this style we find nearly all B II, the rest of B III and the bulk of C, D, and E, 240 clearly Middle Chou vessels. Its coming coincides with a widening of Chinese culture and seems connected with an extension of Chou power just before its culmination under King Kung.

There are no purely Middle Chou vessels datable in or after the 6th century. About then took place a gradual transition to the style the Swedes call Huai after the river from which they obtained many specimens, but this does not imply that the Huai was the centre of its distribution. The Exhibition catalogue calls it the style of the Warring States: we used to call it Ch'in or Ts'in and thought it developed in that state a little before it attained supremacy c. 250 B.C. The new dating was established by Karlgren in his article on the Piao Bells in no. 6 of the Bulletin. The Huai style revived the vigour and many of the motives of the Yin style but continued the new shapes introduced in Middle Chou: it added ten new points of its own; most characteristic is the pattern of

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'teeming hooks and volutes'. Karlgren enumerates some forty pure Huai vessels in classes C and D and another nine with a mixture of Middle Chou elements, but the Huai style lasted on into Han times beyond the scope of his paper.

I believe that Professor Yetts has come independently to very similar conclusions, and will set them out in his forthcoming book on bronzes.

Professor J. G. Andersson then gives a paper on 'The Goldsmith in Ancient China' with most interesting coloured plates. He shows that the inlaying of bronze with gold, silver, turquoise and malachite, which we used to think began in Han times, goes far back into Chou and perhaps Yin, so confirming Bishop White's dating of the 'Tombs of Old Lo-yang'. He traces what look like purely abstract motifs, which his drawings render with admirable spirit, back to bird and beast forms.

Professor O. Karlbeck, to whose travels we owe so many splendid pieces of Chinese work, illustrates clay moulds from An-yang and explains the technique by which they were used in casting the Chou bronzes, and gives pictures of pieces, almost unexampled, of stone sculpture from the same site.

The whole volume makes a most valuable contribution to our understanding of early Chinese art.

ELLIS H. MINNS.

LONDON AND THE SAXONS. London Museum Catalogues: no. 6. By R. E. M. WHEELER. London: Lancaster House, 1935. pp. 201, 21 plates, 1 coloured, and 45 text-figures. 1s 6d.

This is the sixth of the excellent London Museum catalogues which have been produced during the last nine years. In this, the latest addition to the series, the high level of scholarship and production which we have come to expect in them has been worthily maintained. Of the 200 pages rather less than half are concerned with the catalogue itself, the greater number of the first 113 pages being devoted to the question of the survival of London during the Dark Ages.

After a brief survey of the development of the Romano-British towns up to 410 and a description of the invaders, Dr Wheeler goes on to consider the nature of the available evidence. He points out that the documentary evidence is valueless. Nowhere is there any specific information as to the fate of London. But only in one case—the destruction of Anderida by Aelle—are we told of the fate of a Roman town. The vague assertions of Gildas who, moreover, is interested primarily in the West, may be discounted. Little reliance can be placed on Nennius, the precise date of whose *Historia Britonum* is disputed. But we can hardly agree with Dr Wheeler's sweeping generalization that 'disputed evidence is no evidence, and the only safe and scientific course is to reject it utterly' (p. 34). If we reject all disputed evidence we have practically no materials left for a history of England in the Dark Ages. Moreover, the precise value of much of the evidence brought forward by Dr Wheeler for the survival of London during this period may be, and in fact has been, disputed. We are not justified, therefore, in rejecting that evidence entirely.

Since no conclusions as to the fate of London can be drawn from the contemporary documents or from place-names, we must depend entirely on archaeology. Here Dr Wheeler pauses to discuss the value of such evidence. He emphasizes the fact that absence of evidence is not evidence of absence—a point which archaeologists in general are too apt to forget and a point which Dr Wheeler himself seems to forget later on. His main arguments for the survival of London may be summarized as follows. In the first place

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the lack of pagan cemeteries within a radius of from 5 to 10 miles of London indicates that, during the pagan period, London still possessed enough power to keep the invaders at arm's length. But we find the same absence of archaeological evidence in Essex, which is shown by the place-names to have been one of the early regions of settlement. Whatever may be the reason for this lack of archaeological evidence in Essex—intensive cultivation, a change in the coastline since Saxon times or merely chance—yet with such an analogy we must admit that Dr Wheeler's first point is hardly conclusive.

Secondly, the system of Grim's Dykes which were probably constructed during the Dark Ages imply some power in the Thames Basin which can only have been that of London itself. The coincidence of the delimited area with that of the privileged territory of Medieval London seems to indicate a civic continuity. There is, too, some slight evidence for the occupation of London during the Dark Ages, since seventeen objects ascribable to that period have been found in the city. The importance of this is obvious when we realize that only three objects have been found which are ascribable to the seventh and eighth centuries, a period when London was, according to Bede, 'the mart of many nations'. Other factors such as the early coinage and the special legal traditions emphasize the individuality of the city but are not stressed, since, as Dr Wheeler points out, they are not necessarily evidence of continuity.

The skilful advocacy of Dr Wheeler is very convincing and it does seem probable that 'whilst the process of Teutonic settlement in the east midlands was largely one of *submergence*, in the southeast it was largely one of *mergence*'. It has been said that the strongest argument for the destruction of the towns of Britain in the dark centuries is the disappearance of the urban episcopate (review in *Times Literary Supplement*, 11 July, 1935). But we know little about the organization of Christianity in Britain during Roman times. Even if such an episcopate had existed it is not surprising that St. Augustine found no British bishop in London. By 600 the town must have been thoroughly Saxonized. A bastard Christianity may have lingered long but, cut off from contact with other churches, it must eventually have succumbed to the influx of heathen Saxons. The ease of the conversion at a later date is not evidence for the weakness of the pagan religion at the time of the Conquest. In any case it is incredible that a site such as that of London should ever have been abandoned, even if only for a short time. But whether the city was British or Saxon during most of the Dark Ages is difficult to say. The comparative frequency of Saxon objects ascribable to this period would seem to indicate that it soon became thoroughly Saxonized, probably by a process of *mergence* rather than of Conquest. In any case we must find it difficult not to agree with Dr Wheeler's very moderate statement of the case that 'the burden of proof rests today, not with those who hold that London lingered on without cessation throughout the Dark Ages, but with those who would maintain that the city 'lay waste a hundred years'.

In the Catalogue itself we are given valuable descriptions of the finds at the Mitcham and Ewell cemeteries and on the Hanwell and Savoy sites, together with a complete list of unassociated objects. In the appendix is a list of objects found in the city of London and Southwark and referable to the Saxon or Viking periods. These descriptions and the useful typological studies of Saxon scramasaxes and spearheads will prove invaluable to all archaeologists. As we should expect, the general production of the book is beyond criticism and the numerous plates and text-figures are excellent. There are, however, a few misprints which should be corrected in the next edition; note for example the Old English names of the Saxon towns captured by Cutha (p. 69, n.1). It is doubtful

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whether Dr Wheeler's conclusions will command universal support. The evidence, though certainly suggestive, can hardly be regarded as conclusive. That, perhaps, is not to be expected. But, whatever their opinions, historians must remain indebted to Dr Wheeler for his very lucid discussion of the problem. R. M. WILSON.

DIE VOLKERWANDERUNGSZEIT GOTLANDS. By **BIRGER NERMAN.**
Stockholm: Kungl. Vitterhets och Antikvitets Akademien, 1935. With 61 plates and 256 text-figures.

This is another of the fine archaeological publications which stand to the credit of the Swedish Academy, and carries on the high level of excellence which we have learned to expect from it. It is no light task to attempt the illustration and record of every known object from an island as large as Gotland belonging to the Migration Period. Dr Nerman limits this to the two centuries from A.D. 400-600. Mercifully for the author the material is by no means as plentiful as it would be if one were unfortunate enough to have to do the same thing for Kent or Suffolk, but it is a very great business and he is to be highly congratulated on his splendid work. If one may make a very small comment—not a complaint, but rather a plea to all publishers of similar reports—it is very much easier for a student to use a book of this kind if the descriptions of the objects are placed at the bottom of each plate and not in a list alone. This applies to works from every country, and it must not be thought that the reviewer is complaining of any one in particular.

Gotland, though comparatively small, is so situated in the Baltic as to catch the eye of any fleet passing up or down the coast of Sweden. It looks tempting enough when seen, as the reviewer has seen it, from the mast-head of a sailing-ship, to attract the attentions of any plundering force. We are therefore a little surprised to find that the fifth century there was a time of peace. Dr Nerman calls this century period VI : 1. The theory which we see quoted at times by historians, that the Jutes who came to Britain in the fifth century were really emigrants from Gotland, has little support from the archaeological material figured in this book. There is hardly a single specimen in all the 878 illustrations, which might be mistaken for an object found in England. There is a veritable spate of small brooches, some of them having a strong superficial resemblance to Provincial Roman cross-bow types, although it is probably heresy to say so, while others seem to be in process of developing a disc on the bow, which was to become so noticeable in later years. Buckles and strap-ends are much in evidence, and one or two of the former would not be surprising finds in some of our Kentish cemeteries. Of the pottery we can say little; it is typical 'Migration Period' pottery, ornamented with stamps of various kinds and often provided with spout-like handles. There are several glass beakers apparently imported like our own examples from Germany. Dr Nerman shows us that his second period VI : II, which roughly comprises the sixth century, was less peaceful, and there is much Swedish influence. There are numerous bracteates, and the beautiful large gilded brooches ornamented with chip-carving. One has a runic inscription, another, 354a, might almost be mistaken for an English example. Whereas the latest addition, text-figure 256, ornamented with garnets and animals in style 1, is one of the finest barbaric brooches in existence.

Enough has been said to show that this work must be consulted by every serious student of the period, and while congratulating Dr Nerman on it, we look forward eagerly to the next.

T. C. LETHBRIDGE.

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LO-LANG: the Tomb of Wang Kuang. Detailed Report of Archaeological Research (in 1932). Vol. II, by T. OBA and K. KAYAMOTO. *Japanese text* (pp. 110). *English résumé* pp. 8, 100 plates (many coloured) and 12 text-illustrations. Keijo (Seoul): The Society of the Study of Korean Antiquities, 1935.

This tomb, no. 127 at Teihakuri, is very similar to that called 'of the Painted Basket' noticed in ANTIQUITY, June 1935, p. 251. As in the case of Wang Hsü's tomb (v. ANTIQUITY, 1931, p. 521) the dead man's seals give his name and office, Secretary to the Chief Inspector. It is surprising what elaborate tombs these minor officials could afford. The lady's body was very well preserved: her physical type suggests that she came from a distant part of China, but unfortunately the discussion of it is not reproduced in the English résumé. As usual the lacquer ware is abundant, one or two pieces of high quality showing the patterns whose genesis has been so well discussed lately by Professor Andersson in *Yin and Chou Researches*. The most interesting object is perhaps a cross-bow, with its trigger arrangement in position in its wooden stock. The brushes are amusing, three for cosmetics and one for writing. There were two good Han mirrors. Tomb 119 at Nan Seiri, with a stone chamber, was opened in the same year but proved almost empty. The publication is as perfect as can be. ELLIS H. MINNS.

THE MEGIDDO WATER SYSTEM. By ROBERT S. LAMON. [Oriental Institution of Chicago, publications, vol. XXXII]. *University of Chicago Press*. (Gt. Britain: Cambridge University Press), 1935. pp. XII, 38 with 8 plates and 30 figures. 13s 6d net.

The water-supply of a tell or hill-fort has always been a fascinating problem. In this pamphlet we have a careful study by competent archaeologists of the solution to the problem adopted at the very ancient site of Megiddo. A brief outline of the history is as follows:—The original settlement on a gentle limestone knoll was dependent for water on a surface spring at the foot. This spring dried up, owing to a fall in the water-table, probably brought about by deforestation. The water was followed by digging both downwards and laterally along a fissure, so that a cave-well was formed. As the tell grew upwards and the site became a fortified settlement, dependence on an outside water-supply accessible to besiegers became intolerable. The first remedy attempted was to construct a covered gallery leading to the cave from a point just within the city wall, but later a more ambitious scheme was put in hand. A vertical shaft was sunk in the centre of the city; from this an inclined stair was cut, from the bottom of which a horizontal tunnel was driven through bedrock to the cave; the opening of the cave was then walled up and concealed.

The main interest of the present publication lies in the careful exploration of the shaft and tunnel, the deductions as to method of construction, and the dating by archaeological finds. The shaft was sunk through roughly 12 metres of accumulated débris and 23 metres of rock, and the tunnel has a length of 65 metres. How the requisite depth for the shaft and stair, in order that the tunnel from the bottom should be at water-level, was determined is unknown. The direction in which to drive the tunnel was easily fixed. A line of sighting posts was run over the surface, and at the shaft two of these were plumbed down: these two points gave the backward direction. It is noteworthy that the square shaft was placed diagonally to the line, thus giving the maximum length for sighting. The resulting alignment was absolutely accurate, but the tunnel was begun from both ends simultaneously, and from the cave the line diverged

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about 14 degrees from the true. A correction was made, probably by sound, the two tunnels were united and then enlarged, the final stage being the cutting of a water channel in the floor. The details of this work are shown by a number of plans and sections and some excellent photographs.

The archaeological finds were not sensational, but are sufficient to date the various stages with considerable accuracy, when combined with known history. Megiddo was besieged for seven months by Thutmose III and several times attacked, but not overcome, in the Amarna period. Some internal water supply must be postulated, but nothing is as yet known of this, or of the reasons for its abandonment. A bronze statue-base bearing cartouches of Ramses VI was found and serves to date the associated pottery, from which the shaft and tunnel can be assigned to his reign. The gallery is apparently not much earlier and is placed as early 12th century. Before the 11th century the floor of the inclined tunnel was cut away and the horizontal tunnel continued under the steps to meet the vertical shaft, making it possible to obtain water from the top of the shaft by a bucket and rope. Further slight modifications, such as the building of masonry stairs in place of the rock-cut steps, can be assigned to the Solomonic period in the 10th century, to the 7th century and finally to the Greco-Persian period in the 4th century.

Three plates are devoted to the types of pottery, all of which was fragmentary, and five more to small objects of bronze, glass, semi-precious stones, etc., found either on the works connected with the water-supply or in remains of buildings partially explored during the excavations. C. N. BROMEHEAD.

LA CÉRAMIQUE TRIPOLIENNE. By T. PASSEK. Bulletin [*Izvestiya*] de l'Académie de l'Histoire de la Culture Matérielle, no. 122. Leningrad, 1935. pp. 165 and 37 plates, 4 in colour.

I do not think that there has been an account of this culture as it appears on Russian soil since I made a short survey of it in 1913, but we have had treatment of it in Galicia and the Bukovina (Koszylowce, etc., and Schipenitz) and Cucuteni in Moldavia. Since I wrote there has been a good deal published on it in Ukrainian, especially in the *C.R. de la Sect. Archéol. Ans 1925 et 1926* and *La Culture de Tripolie en Ukraine* I, Kiev 1926. Passek is entirely concerned with the way the splendid spirals that went right round the pots degenerated into a symmetrical and metopic arrangement of weak lines. Besides the polychrome pots, and those he calls monochrome which were nearly as attractive, some pots have the spirals incised; and there are other pots with a decoration of fluting or grooving. The interrelation of these series on various sites gives him a basis to establish three periods traceable over the whole area, a fourth peculiar to the Desna and Dnepr areas inland, and a different fourth period and a subsequent fifth on the Dnepr and along the coast. Period two corresponds to Cucuteni A, period four on the Dnepr to Cucuteni B. Chvojka's A is period three, his B period four on the Dnepr.

We do not see the culture coming into being (the best ware appears perfect and merely degenerates); it seems to have come from the west, lasted a couple of thousand years, based on the peaceable use of the hoe, and perished by the encroachment of the people who buried their dead crouched in barrows.

The coloured plates are really excellent and the others serve their purpose. But a complete study of the culture and its relations is still a desideratum. E. H. MINNS.

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UKAZATEL RABOT GOSUDARSTVENNOY AKADEMIY ISTORIY MATERIALNOY KULTURY *Imeni I. Ya MARRA, s. 1921-1935 gg. OGIZ, Moscow-Leningrad, 1936. 3 rubles.*

This 135th volume of the *Izvestiya* of the Academy of the History of Material Culture contains a list of the Academy's periodical publications, followed by a classified list of all articles published therein. The articles (including reviews) are grouped in thirteen sections—General, History of Primitive Society (*i.e.* Prehistory), of the Ancient and Hellenistic Orient, of Ancient Greece and Rome, of the Byzantine Empire, of Western Europe in the Middle Ages, and so on—and within each section by years. It thus provides a handy index to a large section of Russian archaeological literature since the Revolution. It does not of course cover the publications of the Ukrainian Academy, of the Academy of Sciences or of local museums.

KRATKIY OTCHET O RABOTE AKADEMIY V 1935 G. (*Leningrad, 1936, 1 ruble*) is a brief report on the work of the same Academy during 1936. Besides a summary of finances, publications, excavations, photographic and laboratory work and so on, the brochure gives in Russian an account of the structure of the Academy, and lists of its staff and of its foreign correspondents. We note that only three English institutions* are receiving its publications by exchange as against eight German and eight American institutions.

V. G. CHILDE.

✓ PREHISTORIC ASSYRIA: the excavations at Tell-Arpachiyah, 1933. *By M. E. L. MALLOWAN and J. CRUIKSHANK ROSE. Oxford University Press, 1935. pp.178 with 22 plates and 79 figures. 21s.*

When Dr Campbell Thompson, at Nineveh in 1932, sunk a shaft to the natural undisturbed surface-level so as to determine the succession of cultures at that spot, he found Samarra and Tell-Halaf ware in the lowest strata. He perceived the need of confirming these results by further investigations. The difficulty at Nineveh of reaching undisturbed soil, owing to the thickness of accumulated debris, suggested the idea of attacking a lower mound, and the choice fell on Tell Arpachiyah, a site less than four miles from that of Nineveh from the Tigris.

The direction of the excavations was entrusted to Mr Mallowan, who has now published a detailed report of his 1933 campaign. The mound of Arpachiyah is not more than 10.5 metres high and the excavations did not extend beyond a depth of 5.5 metres, within which limits the superimposed building-layers were recorded. If we examine these layers, beginning with the lowest (and remembering that there is plenty of room for about five more undiscovered strata below) we obtain the following results.

Strata 10-6. A culture characterized by the ware found at Tell Halaf, whose decoration, at first naturalistic (animals) and monochrome, gradually disappears, to be replaced in the sixth stratum by a stylized decoration (boukrania, for instance) and by polychrome ware.

Contemporary with this locally manufactured Tell Halaf ware there is also found, though only from the 8th to the 6th stratum (mainly in the 6th), imported Samarra ware,

* The Society of Antiquaries of London, the Hellenic and the Roman Societies.

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generally in fragments. (Note that at Nineveh the Samarra ware begins much earlier, in the lowest stratum).

The strata below 10 to 7 have revealed a most curious kind of structure which Mr Mallowan calls 'tholoi'. These are dwellings consisting of a round room, built on stone foundations on which rest mud walls; the form of the roof remains conjectural. These structures develop and improve as one passes from one stratum to the next. In stratum 7 there has been obtained the plan of a house of greater length than width, not facing on a court as is usual in southern Mesopotamia.

At the 5th stratum there is observed a change in the culture of Arpachiyah; a people having the ware of Al' Ubayd settled on the mound and occupied it by force, destroying the houses and tombs. The whole of this stratum, therefore, is full of the débris of the two cultures.

Strata 4-1 contain only remains of the Al' Ubayd culture, including the characteristic monochrome ware with geometric decoration; they correspond, in short, to the end of the Al' Ubayd period which precedes that of Uruk, but whose extreme end overlaps the beginning of the Uruk period. One finds there, in fact, associated with Al' Ubayd ware, the grey-brown ware and red (*engobe*) ware met with in the Uruk stratum.

It has been remarked that Al' Ubayd ware does not occur at Nineveh; but one finds there (in stratum 4) the red (*engobe*) ware and (in stratum 3) the grey-brown ware belonging to the Uruk period, which are associated in the upper levels at Arpachiyah with Al' Ubayd ware; thus the contemporaneity of these two periods is established.

In the upper strata (4-1) at Arpachiyah metal appears, but is rare; at the top of the mound there was found a copper blade comparable with those found in the cemetery at Susa.

The houses are of more primitive construction in the Al' Ubayd strata than in those of Tell Halaf; made of mud or clay they are no more than huts; but in strata 2 and 1 there were some crude bricks of plano-convex form. This type therefore appeared very early on certain sites (it was found in strata 4 and 3 at Nineveh).

Mr Mallowan, on account of the importance of the remains, considers that the strata of which the Tell Halaf deposit at Arpachiyah is composed, must represent a period of time at least double that of the Al' Ubayd strata, and that the culture of Al' Ubayd at Arpachiyah is lower than that of the south. He considers that a thousand years is not an excessive amount to allow for the extinction of painted pottery in the south, for the replacement of the button-seal by the cylinder-seal, for the transition from mud to plano-convex bricks through a stage of rectangular bricks (*Riemchen*), for the invention and development of writing; the culture of Arpachiyah up to the 10th stratum would then cover the 4th millennium.

We can only refer briefly to the polychrome pottery, the real revelation of the excavation, of which many examples are exhibited in the Baghdad museum. They consist principally of bowls with both inner and outer surfaces ornamented in black, red and white on the yellow background of the vessel; the decoration in geometric, consisting of triangles, water-lines, dots, quatrefoils; the centre is usually fitted with a rosette almost identical with that which appears later as the Assyrian rosette.

The excavations of Dr Campbell Thompson at Nineveh made it desirable that confirmatory evidence should set the seal upon his results at Nineveh; the work of Mr Mallowan at Arpachiyah has provided the desired confirmation and much more, in the richness and surprising character of his discoveries, such as the tholoi and the polychrome ware, the first yet found in ancient Western Asia.

G. CONTENAU.

ANTIQUITY

ANCIENT GAZA IV. By FLINDERS PETRIE. British School of Archaeology in Egypt. *Quaritch, Grafton Street, London, W.1, 1934. pp. 21 and 70 plates.*

This volume records the excavations of 1933 and 1934. The brief text is mainly a catalogue of objects found; it closes with a short review of the researches of eight years in Palestine. These researches the editor believes throw much light on the 15th and 16th Hyksos dynasties, and on the source and nature of these invaders. The researches are said also to have thrown 'much indirect light on the Scriptures' which has resulted in 'generous grants where confirmation of the Bible is concerned'. It is to be hoped that archaeological research will not always have to depend for its upkeep on the character of its results. Reference is made to the fact that at Gaza 'the more advanced works of a higher civilization were imported from foreign lands which lay north'. It is suggested that this 'higher civilization' is not farther off than North Syria and that 'a search up to that region ought to bring to light the seat of a great Asiatic culture of those ages'. It is doubtful if the origin of the obviously alien objects will prove to be a 'great Asiatic culture', at least none more startling than the type of culture best seen at Ras Shamra. It is perhaps unwise to titillate the imaginations of the uninstructed in this way, for there is no room in the regions indicated for the discovery of a totally new civilization of the type beloved by the Press. The plates tell their own story, which is a profoundly interesting one, but hardly of a type to suggest new archaeological Eldorados. S. C.

HOMERIC ESSAYS. By ALEXANDER SHEWAN. *Oxford: Blackwell, 1935. pp. 456. 21s.*

In this large volume Dr Shewan has collected his most important papers on Homeric problems, which have appeared in various learned journals over a long period of years. For the author developed his interest in Homer seventy years ago, and has for long been the doyen of Homeric scholars. He has seen several generations of Homeric criticism arise and fall, and in this book he treats each on its merits. The book is full of charm and written in a vigorous and fluent style. The author crosses swords with any who will cross them with him. His principal *bêtes-noires* appear as the reader progresses. This is no place to evaluate Dr Shewan's position as a Homeric scholar, nor does he give any hint that he expects so to be evaluated. But he stands clearly in the forefront of those Homeric students whose principal weapon is commonsense. For more sheer nonsense has been written by the professional hack-critics about Homer than even about Shakespeare. But for the former we have fortunately the valuable check afforded by archaeological evidence, while in the case of Shakespeare we do not even know the contents of his grave! Dr Shewan, as one would expect from a scholar of his experience, draws deeply from the archaeological sources. On the whole he uses archaeological evidence well and with caution, unlike many Homeric scholars, who run amuck with a mere handful of sherds as stimulant. But Dr Shewan errs perhaps in the opposite direction. His scholastic training has given him a passion for that saddest of sports—the beating of dead dogs. He revels in the Ithakan problem; the reader's mind whirls and is numbed by the terrific energy with which he demolishes the Leucadians. Asteris, Daskalio, and that dreadful sentence in the Odyssey where Ithaka is described as 'the last island lying over against the gloom', whizz round our heads like controversial meteors. What, in the long run, is the solution of the Ithaka muddle? the excavators of the island have done more in a season or two than has been achieved in a century of word-spinning. The discovery of the single potsherd inscribed 'Prayer to

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Odysseus' in a sacred cave on Thiaki*, the pyres and pottery from Aëtos, and a sufficiency of Mycenaean material, explodes finally the Leucadian heresy. There is not the smallest difficulty for a reasonable man to accept Daskalio as a most admirable ambush—I would guarantee to hide a large galley behind it as long as there were a few bushes growing on it—and we are left only with Homer's muddled geography. For Homer, when he said that Ithaka was 'farthest to the gloom' of all the islands, thought that the Ithaka channel ran east and west, and saw that Ithaka extended out to sea. In any case if I were asked, after one visit, to describe the various parts of the islands of Delos and Rheneia and the odd islets round them I am quite certain that I should fail to remember quite important features and lose direction if I had no map to refer to. It is, after all, an experiment that anyone can try on the coast of Scotland or Wales—to write a brief epic about a given piece of coast and see what is forgotten in the geography. If only the Homeric scholars had been made to do this, much ink would have remained in the ink-pots. I fear I cannot agree with the author in his translation of περιπετάτη. I am sure that all Homer was trying to explain was that Ithaka was the last island on the west out to sea—just that and no more. But his memory and knowledge were poor. So too when he calls it 'low' he is right. Ithaka has high hills on it, but is quite over-towered by the other island. Here I am in agreement with Shewan, who says that 'from a distance' it looks low. It certainly does, and that is all that Homer meant. Again Dr Shewan is right in his clear distinction between Homer's 'fairy tale' geography and the geography that he knew in person or at good second hand. In the latter class we must place Ithaka and the Ionian islands, the north-east Aegean coast and the Troad, and the mainland of Greece as illustrated in the land trip of Telemachus and the Catalogue. All else is a composition of odd sailors' tales and merchants' stories gleaned from heaven knows where. Gibraltar glimmers once into view: the Black Sea and Sicily emerge as a traveller's tale; the remote Baltic—perhaps even Norway—masquerades as 'Telepylos of the Laestrygonians'. But the main distinction between real and unreal geography holds, and Dr Shewan has done a great service in making this point clear.

Scheria is to him quite definitely Corfu. Here too I agree. He might have made more of the famous 'petrified ship', the little islet offshore. Here, to me at least, is a valuable hint. Any such rock, anywhere in the world, at any age, would give rise to the local legend that once upon a time it was a ship that was struck by some magician into a rock. Such it must always have been called by the most ancient Corfiots. A poet goes to Corfu from Ithaka, sees the rock, hears the story, and at once places it in his story as the Phaeacian ship that was smitten by Poseidon. As though William Morris had incorporated in an epic some story of a 'Devil's Quoit' or an 'Arthur's Seat'. Normal poetic procedure—and, if you wish, proof that Homer went to Corfu. But *au fond* it is clear that archaeologists must carry out a campaign at Corfu to investigate its prehistoric and proto-Hellenic sites. Oddly enough this has never been done, though Dörpfeld claims to have found traces of Mycenaean settlement.

Dr Shewan mishandles his archaeological evidence in this context. He accepts the long-discredited 'Mycenaean settlement' at Torcello and is prepared to believe, with Evans, that the Corfiot pediment of the Gorgon has Minoan-Mycenaean features. It has none at all, and is pure Orientalizing Greek work in design and execution. Nor are his Minoan parallels for the 'golden youths holding torches' of the Palace of Alkinoos at all apposite. These very Victorian statues must remain in an archaeological vacuum,

* Described on p. 350 of this number, where it is published for the first time.

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where they have always been. But Scheria is Minoan-Mycenaean in all certainty. Nilsson's contention that it represents a settlement of the early days of Hellenic colonization seems to me sheer nonsense. How, if that is the case, can he explain the matriarchal rule of Arete, or the thirteen princes (like the Mycenaean Kings of Cyprus) or the cyanus-bedecked palace with its megaron hall? Orientalizing elements they may be which have, as everywhere in Homer, crept into his descriptions of earlier material settings. But the main shape and flavour of the land of Alkinoos is pre-Hellenic.

Dr Shewan's pages lead on both the reader and the reviewer. They are written with much skill and fluency and are rich in scholarly conjecture. His vigour and enthusiasm will give a much needed fillip to Homeric research. But I wish he had travelled more extensively in Greece and devoted his energies to excavation as well as to scholarly conjecture!

S. CASSON.

DAS HEROON VON KALYDON. By E. POULSEN, E. DYGGVE and K. RHOMAIOS. Copenhagen: Levin and Munksgaard, 1934. pp. 143, with 7 plates and 157 illustrations. Price not stated.

Near the city of Kalydon in Aetolia at the narrowing of the Corinthian Gulf is a small and neat *heroon*, surviving as a considerable ruin. This detailed and very fully illustrated report shows the *heroon* is, architecturally, based more on the plan of a private house or a typical Greek gymnasium than on the plan of a religious type of building. The Casa del Fauno at Pompeii, the Prytaneium at Magnesia on the Maeander, and the gymnasium at Priene, or that at Epidaurus, give close resemblances. An earlier building of Hellenistic date was reconstructed about the second century A.D. by the inhabitants of Kalydon, and the Greek style and shape was maintained.

The section-plan of the building is the most remarkable, for here are elements which suggest far more ancient parallels than the excavators adduce. The ground plan is of a large central courtyard with a peristyle and rooms opening off the central square, as in houses and gymnasia. But projecting from the inner side of one of the largest of these rooms is an apsidal cult-room with a basement room. In the basement room was the grave of the hero, approached by a flight of steps. The room over the grave was for ceremonial; in front of this room was a further hall, forming part of the rectangular courtyard. The first comparison of the basement room and its first-floor room above is with the *adyton* in the temple at Delphi, and it may not be too conjectural to compare both with the new Temple-tomb at Knossos, where exactly the same features appear. All three give us examples of underground grave-sanctuaries (for at Delphi was the reputed grave of Dionysos) and all three follow exactly the same plan. The Greek *heroon* is all too little studied. Here we have what is virtually the first detailed study of such a building. There is no discussion or illustration of the *heroon* as a type of building in Robertson's standard work on Greek and Roman architecture, and none in Fyfe's 'Hellenistic Architecture'.

S. CASSON.

THE BIRTH OF THE MIDDLE AGES, 395-814. By H. ST. L. B. MOSS. Oxford: Clarendon Press, 1935. pp. xviii and 291 with 8 plates and 10 maps. 12s 6d.

This is an extremely good book. Mr Moss has set out to cover in a single volume of moderate dimensions the four and a half momentous and controversial centuries which separate the ancient from the medieval world, and he has succeeded to an extent unsurpassed by any similar undertaking in English. His work may not contain much that is

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new or that can be described as the outcome of original research, but it passes the severest test applicable to works of 'high vulgarisation' in its comprehensive grasp of recent contributions to a great variety of subjects, its emphasis throughout on the significant and its general balance and cohesion as a whole. It is also very well written, and though much of the material has necessarily to be presented in a highly compressed form, Mr Moss is never unreadable and hardly ever uninteresting. It is a book which should be equally stimulating to the novice in this period, and to its more hardened students, and the illustrations, each of which does definitely illustrate a sentence or paragraph of the text, and which range in date from a Sassanid relief of the third century to the Carolingian or later Torhalle at Lorsch, and in distribution from an Indian minaret to the Bewcastle cross, are chosen with judgment and avoid with equal skill both the hackneyed and the irrelevant.

The arrangement of the book serves to bring out Mr Moss's standpoint. It falls into four main parts: Romans and Barbarians; the Triumph of Justinian; the Onslaught of Islam; and the Age of Charlemagne; and while within these broad divisions some sections are rather curiously distributed—it is a little odd for example to find the Anglo-Saxon Invasions and the end of Roman Britain discussed not in part 1, but as the opening section of the Age of Charlemagne—and while in view of Mr Moss's own words on pp. 109, 116, and 123-4, the word 'Triumph' may seem hardly appropriate as applied to the work of Justinian, yet the treatment is well-balanced and Mr Moss seems equally at home in describing the origins of Islam and discussing the growth of the Papacy. He pays perhaps less attention than it deserves to the all-pervading importance of doctrinal questions in the mentality both of east and west: thus though he rightly speaks of Augustine as one 'whose influence on the Middle Ages can hardly be overestimated' (p. 13) we look in vain for any adequate exposition of the conceptions which made that influence so incalculably great; and it may perhaps be taken as symptomatic of the same weakness that Mr Moss should characterize the Easter controversy between the Celtic churches and the Roman mission in the seventh century as merely an example of 'minor, though controversial differences' (p. 208): in fact, of course, in an age in which every year was dominated by the regular and momentous sequence of the greater fasts and festivals, the mere existence of such a controversy seemed to dissolve the very foundations of the Christian life.

But a work of this scope can hardly expect to maintain an equally sure touch on every topic: it is greatly to Mr Moss's credit that the chinks in his armour—like the misprints in his book (p. 97, 553 for 533: p. 208, Columban for Columba)—should be so few. One can only end by repeating that he has given us an extremely good book.

J. N. L. MYRES.

MONUMENTS MESOPOTAMIENS NOUVELLEMENT ACQUIS OU PEU CONNUS. By G. CONTENAU. Paris: Musée du Louvre. Les Editions d'Art et d'Histoire, 1934. pp. 27, with 15 plates and 7 text-figures. 30 francs.

Those interested in Mesopotamian art will welcome this important series of publications with illustrations of large and small sculptures ranging from the Sumerian and the Akkadian to the Achaemenid periods. Many of the objects, in themselves of great importance for the history of art in Western Asia, are adequately illustrated for the first time: throughout the book Dr Contenau appends learned comment, and indicates analogous material.

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When we examine the sculpture of the Sumerian and Akkadian periods we realize how much we have still to learn about the development of the arts in those times, especially about the turn of the older Sumerian and Akkadian periods; and indeed even the Gudea statues of the 25th century seem to carry on the older pre-Akkadian tradition. Thus the limestone statuette of Sa-Oud, apparently just pre-Akkadian, certainly gives us a foretaste of the later Lagash statuary (*e.g.* the famous British Museum Patesi of Lagash), whereas the statue of the grandfather, Lugal Kisalsi himself, seems to be in closer touch with the Ur Nina tradition.

Many of the objects illustrated suggest interesting comparisons with other material. The limestone plaque on pl. iv of about the time of Ur Nina—with a lion-headed eagle standing on two lions—reminds us of the Al 'Ubaid Im Dugud relief. The statuette of a Sumerian woman shown on pl. vb is ascribed to the Akkadian period: there are parallels from Ur which could certainly pass as third dynasty. Plate xi, a and c, show two gems of animal carving of about 3000 B.C. in white marble and limestone respectively, all too little known. One of the most brilliant pieces in the whole collection is a fragment of a vase in a brown stone, pl. xiib, showing a prisoner with his hands bound and the man himself noosed and corded like a bull. I doubt whether this masterpiece of the Akkadian period is known to more than a few Mesopotamian archaeologists.

On pl. xiid there is shown a remarkable relief of 'Gudea libateur' where the patesi is figured as pouring a libation onto a palm rising from a vase which stands upon a curiously decorated pedestal. Dr Contenau quite rightly insists that the pedestal is an altar and there is precise evidence to prove the correctness of his view, for at Ur, in houses of the Larsa period *c.* 2000 B.C., the private chapels contained low altars of the kind figured on this monument, built of mud with decorated facades coated with plaster. Sometimes the offerings remained in position upon them. All the more interesting therefore are the author's comparisons of similar monuments of the Assyrian period at Ashur, also at Fraktin and Boghaz Keui. It is to be hoped that Dr Contenau will continue to give us further numbers of the less known Monuments Mesopotamiens.

M. E. L. MALLOWAN.

HANDBOOK OF TRAVEL. Prepared for the Harvard Travellers Club. Edited by GEORGE CHEEVER SHATTUCK. 2nd edition, 1935. *Harvard University Press, Cambridge, Mass.; Oxford University Press, London.* 12s 6d.

A comprehensive handbook for the professional traveller. The book is divided into four sections:—methods of travel; camping; recording and collecting; hygiene, medicine and surgery. The first covers a wide range—from the motor to the camel-caravan. The second includes a useful list of edible plants. The third contains, in addition to the usual directions for collectors, a long chapter on photography, and one on the elements of practical archaeology. In the last section, some 100 pages are devoted to careful instructions to travellers on the treatment of diseases, etc.

The book is well written and arranged, and each chapter is followed by an adequate bibliography. Perhaps more use might have been made of illustrations; those given are good.

MERIC DOBSON.



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Antiquity

A Quarterly Review of Archaeology

VOL. X No. 40

DECEMBER 1936

Editorial Notes

THIS is the 40th number of *ANTIQUITY*, which has now completed the first ten years of its career. It is an event of which we are justly proud, and we propose to celebrate it by describing how *ANTIQUITY* came into existence. Although there are still quite a large number of the original subscribers of 1927 left, there are also many others of more recent date. All, we think, will like to be told the inner history of a venture which has succeeded so well. It is necessary to do so mainly in the first person, since the idea originated in the brain of the founder (Crawford), though he was closely associated with his colleague (Austin) from the very outset, and it was Austin who suggested the title *ANTIQUITY*.



On 19 December 1925, I set down the main facts in the following words:— 'If the scheme to found an archaeological quarterly should succeed, it will some day be of interest to know its inception. The idea was my own, and was suggested by the excellence of the old *ARCHAEOLOGICAL REVIEW* published during the 80's and edited by G. L. Gomme. This contained, amongst other good things, Sir Arthur Evans's article on Stonehenge (1885), and it was to consult this that I referred to the Review. The idea, vaguely formed about the middle of November 1925, took more definite shape in discussing it (for the first time) with Dr Clay, with whom I was staying at Fovant

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19 to 25 November'. Further discussions with other friends took place during the weeks following. It is curious that at this early stage, though the need and functions of such a journal were quite apparent to me, I did not then see myself as the Editor, and even wrote that 'the question of an editor is the crucial one and as yet undecided'.



At Christmas I discussed the project with a non-archaeological friend who confirmed me in my opinion that I should not only have to edit but also to publish the journal myself. Neither publishers nor booksellers could offer, in return for a heavy commission, anything that I could not equally well obtain for myself. Moreover, I could concentrate my publicity efforts upon the archaeological public, which a publisher, with all his varied interests, could not be expected to do. On the other hand, if I were to take on this heavy responsibility, I must have a collaborator, who would have to be resident in the town where the journal was printed. By good fortune Gloucester contained both the man and the firm, both now well-known to readers of *ANTIQUITY*. On 8 February 1926 I discussed the project with Roland Austin and William Bellows at Gloucester. We each proposed titles, but without coming to any definite decision. Shortly after this, however, in a letter to me dated 14 February 1926, Austin suggested *ANTIQUITY*. This title fairly covered all the subjects I had jotted down in a list of projected articles; it was not exclusive and would cover those of historical and anthropological interest. The scope of the journal was to be the whole field of human history from palaeolithic times down to the modern period. Among the rejected titles were 'Origins' and 'The Archaeological Review'.



What I had in mind was to found a journal which would raise the general status of archaeology, and would popularize its achievements without vulgarizing them—in a word, which would take a place equivalent (both in form and content) to that already occupied by the monthlies and quarterlies in regard to public affairs generally. The main outlines of the evolution of human culture are now firmly established, and it was time that this knowledge should become diffused. But it seemed nobody's business to diffuse it. Here was a demand without a supply. I decided to meet it.

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all that we could have wished, though it contained some good things. In actual fact we had to print every article then in hand, and when this was done nothing was left but promises to rely upon for Number 2. Since then, it has often happened that there have been only one or two articles in reserve after the publication of any given number. This causes occasional anxiety, but helps to keep the contents fresh and up to date, and never yet has the post failed to bring the necessary manuscripts.



Thus ANTIQUITY has the merit, if such it be, of not having overreached itself in the first number, like so many new journals which appear with a blaze of talent and die down rapidly to a feeble flicker of second-rate stuff. It would be very easy, but most invidious, to name the authors of those which the Editors consider the ideal articles ! Nearly all have been asked for (most articles in ANTIQUITY have originated in a special request). The writing of some has initiated research that otherwise would never have been undertaken. Sometimes that research has ended in the production of an article admirable in every way, but too learned or too long for ANTIQUITY. Some proposed articles have eventually appeared as books ! One of my first steps was to write out a list of suitable articles. It is in front of me now, and is headed 'Subjects for the Archaeological Review' and is dated 18 December 1925. There are 107 titles ; of these 32 have been completely published at the end of our first decade. Several of the remainder have been printed elsewhere in a modified form or in another journal. The first title is 'Descriptive list of the earliest Iron Objects found'. The article which substantially deals with this subject was published under another title in the present volume. Patience and importunity are among the many qualities necessary in editing, and we still hope to obtain some of the seventy articles which we should like to print.



At first ANTIQUITY was published on the fifteenth of the month of issue, but we found that people thought it was always exactly a fortnight late, so we changed the date to the first of the month. Actually ANTIQUITY has always, without a single exception, appeared punctually on the appointed day, which must constitute a record. It is one for which all the credit must be given to my co-editor ; what it has cost to

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achieve this, he and he alone knows, though echoes of the struggle sometimes reach Nursling. There are times when I wonder whether it would really matter, in comparison with the efforts involved, if we were a day or two late ; but I have held my peace, and the seemingly impossible has always happened. Long may it continue to do so.



Difficult as it has often been to obtain the right kind of article, we have somehow kept up the standard, and we shall endeavour to do so if in the years to come we are as well supported by archaeologists as we have been in the past. Here we will take the opportunity of asking them to send in more NOTES. These are popular with readers, but very hard to get. They should be about two or three pages (1500-2000 words) in length.



Our illustrations are, we know, famous both for their number and quality. Some are supplied by the authors of articles, though not always in a form suitable for reproduction. However, so long as we get *good* illustrations, we are content, if it must be, to go through the processes necessary to achieve that end. It is no exaggeration to say that, in a scientific journal, plans and illustrations are often more important than the text.



Finally, a word about circulation, the life-blood of every journal. Only by constant and unremitting work can the circulation of ANTIQUITY be maintained. The inevitable wastage that every journal has to face is a serious and ever-present anxiety. We have to get new subscribers by our own efforts, though we owe much to those of our friends, who have been extraordinarily helpful in this way (we have one such particularly in mind). We beg of them to continue so. We have achieved our ambition of ten volumes, but we do not intend to rest upon our laurels. Until the day comes, as inevitably it must, to hand over the control to another generation, we shall do our best to produce ANTIQUITY on the same level of achievement as in the past decade. We welcome criticism, but we also ask for the help that can so easily be given—help in the form of additional subscribers ; of prompt fulfilment of promises of articles and reviews ; the early return

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of proofs, and payment of subscriptions. The onerous duty of editing can be greatly lessened by such small things as these. Neither of us can give his whole time to the work ; if we could, we should perhaps be able to improve its quality. But we must not end with a petition, but rather with an expression of sincere and heartfelt thanks to all our readers and contributors—including the faithful band of Reviewers who have given ANTIQUITY a very high standing in this respect—without whose willing cooperation it would never have been possible to reach the FORTIETH NUMBER.



In deference to the feelings of our subscribers we refrain on this special occasion from adding the usual annual exhortation, and content ourselves with the insertion of the form which gives the information so necessary for our existence.

Human Progress; a review

by O. G. S. CRAWFORD

MAN MAKES HIMSELF. By V. Gordon Childe. London: Watts & Co., 1936.
pp. 274. 7s.

NO book quite like this has ever been written. That is partly because the scientific discoveries upon which it is based are themselves so new that some of them are still unpublished (the earliest pictograms, for instance). But even when the knowledge is less new it is, for the most part, the special preserve of a few students, of great powers but limited range and outlook. Professor Childe can meet them on their own ground, for he has studied the archaeology of the Near East and India (as well as of Europe) at first hand. Four of the nine chapters in this book 'are based on first-hand study of the original objects, and reports' (p. vii); and, indeed, so are the relevant parts of the first three—the last two being of a general nature. There is probably no man living with better qualifications for such a theme as the Making of Man; and that holds true, whether one agrees (as the reviewer does) with Professor Childe's thesis, or not. Most of it, of course, is not opinion but fact.

That thesis is as follows. (The author's ideas are stated in his own words, whenever practicable).

Both men and animals have to satisfy their primary needs by adapting themselves to their environment; otherwise they perish. Man differs from the animals because he solves his problems by the use of intelligence instead of by some long-drawn-out process of organic change. For example he meets the primary need of shelter by clothing himself in animals' fur, instead of growing it on his body (I employ a Lamarckian mode of expression for convenience only). Such intelligent devices are 'external to his body; he can lay them aside and don them at will. Their use is not inherited, but learned, rather slowly, from the social group to which each individual belongs' (p. 19). Slow though the process is, it is infinitely quicker than the animal method; and it has the paramount advantage of allowing the organism, man, to

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retain complete power of adaptability to altered circumstances. Thus human history is seen as the interaction between man and his environment, which includes of course other groups of men. More precisely the 'realist conception of history' insists on 'the prime importance of economic conditions, of the social forces of production, and of applications of science as factors in historical change' (p. 7).

The actual process of historical change, as operated by those causes, can be seen with beautiful clarity at certain crucial moments of the past. These moments, of many generations in duration, Professor Childe calls, quite correctly, 'revolutions'. 'Each new "age" is ushered in by an economic revolution of the same kind and having the same effect as the "Industrial Revolution" of the eighteenth century' (p. 39). 'The First Revolution that transformed human economy gave man control over his own food supply' (p. 75). That revolution Professor Childe calls the Neolithic Revolution; it was the climax of a long process and consisted of the invention of agriculture and the domestication of animals. This economy of food-production (as contrasted with the preceding one of hunting and food-gathering) 'provides an opportunity and a motive for the accumulation of a surplus' (p. 93). It is also 'entirely self-sufficing', though without necessarily involving isolation (p. 94). Indeed complete economic self-sufficiency may never have been attained. 'The point is that such trade [as existed] was not an integral part of the community's economic life; the articles it brought were in some sense luxuries, non-essentials'. Even the trade in flint and other stones partook of this nature; for local sources of supply were invariably drawn upon as well. This sporadic intercourse 'was of vital importance to human progress; it provided channels whereby foreign materials might be compared, whereby, in fact, culture itself might be diffused' (p. 98).

The First Revolution is associated with the invention of certain crafts, such as pot-making, weaving and spinning, which in their turn 'reacted on human thought. Building up a pot was a supreme instance of creation by man' (p. 105). A loom, too, is 'quite an elaborate piece of machinery', and its invention 'was one of the great triumphs of human ingenuity . . . an application of science that only to the unthinking seems too trivial to deserve the name' (p. 107). Yet all these industries 'were household crafts. In our hypothetical neolithic stage there would be no specialization of labour—at most a division of work between the sexes' (p. 107). Moreover all these industries, 'from garden culture to weaving, have been rendered possible only by the

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accumulation of experience and the application of deductions therefrom. Each and all repose on practical science'. But 'if we may judge from the procedure of modern barbarians, the legitimate deductions from experience are inextricably mixed up with what we should call useless magic. Each operation of every craft must be accompanied by the proper spells and the prescribed ritual acts' (pp. 107-8). Also, an associated event may wrongly be regarded as a cause. 'Because the star Sirius is seen on the horizon at dawn when the Nile flood arrives it is inferred that Sirius causes the Nile flood. Astrology is based on this sort of confusion' (p. 117). At a later date this primitive credulity was fully exploited by the priests in the name of their god; to what extent such exploitation already existed before the Second Revolution we do not know, but we are inclined to think there may have been more of it than Professor Childe suspects. On the other hand it is not likely to have developed very far, for 'had such magics and rituals been firmly established, they would surely have retarded the spread of the Second Revolution. After it, firmly rooted beliefs—for instance, in the efficacy of astrology and the potency of divine kings and ancestral spirits—did impede the growth of true science and the establishment of an inter-urban international economy' (p. 113)—just as, we might add, they still do today.

This early science is essentially a social thing. 'The craft traditions are not individual but collective traditions. The experience and wisdom of all the community's members are constantly being pooled' (p. 108), just as are the results of men of science today; indeed that is the essential feature which distinguishes the scientific worker from the capitalist business man, the doctor from the inventor of patent medicines. 'The neolithic economy as a whole cannot exist without co-operative effort' (p. 109).

The Second Revolution 'transformed some tiny villages of self-sufficing farmers into populous cities, nourished by secondary industries and foreign trade, and regularly organized as States . . . The scene of the drama lies in the belt of semi-arid countries between the Nile and the Ganges. Here epoch-making inventions seem to have followed one another with breathless speed, when we recall the slow pace of progress in the millennia before the First Revolution or even in the four millennia between the second and the Industrial Revolution of modern times', [which is of course the Third Revolution].

'Between 6000 and 3000 B.C. man has learnt to harness the force of oxen and of winds, he invents the plough, the wheeled cart and the

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sailing-boat, he discovers the chemical processes involved in smelting copper-ores and the physical properties of metals, and he begins to work out an accurate solar calendar. He has thereby equipped himself for urban life, and prepares the way for a civilization which shall require writing, processes of reckoning and standards of measurement—instruments of a new way of transmitting knowledge and of exact sciences. In no period of history till the days of Galileo was progress in knowledge so rapid or far-reaching discoveries so frequent' (pp. 118-9).

The First Revolution had bound men to the soil. From its inception 'capital in the form of human labour was being sunk in the land . . . They would not lightly forego the interest brought in by their reproductive works' which 'required capital in the form of a stock of surplus food-stuffs, accumulated by and at the disposal of the community' (p. 122). The Second Revolution arose quite naturally out of the first, for it 'required that a substantial proportion of the community should be permanently withdrawn from the primary business of getting food to be employed on reproductive works, in secondary industries, in transportation, commerce and administration. That is possible only if there is a surplus of food-stuffs already available to support those members of the community who are no longer themselves producing their own food. Moreover in practice a surplus is needed to barter for raw materials not available locally' (p. 148).

Thus there is observed a growing tendency for the increasing population to remain at home, where labour is needed and is profitable, rather than to migrate and found new self-sufficing settlements; for that would mean abandoning the results of invested labour. Those who thus remain at home become specialists; they devote the whole of their time to the new crafts. As these multiply, urban culture gradually comes into existence, replacing the old self-sufficing neolithic village community.

Professor Childe then discusses the problem of whether 'conquest is an essential pre-requisite to the accumulation of communal capital needed for the accomplishment of the Second Revolution' (p. 148). He concludes that, while 'in Egypt the first accumulation and concentration was apparently the result of conquest . . . it is not demonstrable that such conquest was in all cases the effective cause' of it. 'In Mesopotamia . . . it was nominally a native god (in practice, of course, the corporation of his self-appointed priests) that administered the accumulated wealth of a Sumerian city; there are only the vaguest and most ambiguous hints of an aristocracy owing its wealth to conquest

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rather than to religious prestige and homegrown social tradition' (p. 149). 'The magician may have been the first independent craftsman, the first member of any community to have a claim on the surplus product of the collective food-quest without contributing thereto by physical activity. But the magician's wand is an embryo sceptre, and historical kings still retain many trappings from their magic office . . . Anyone who could successfully claim to control the elements by his magic would, of course, earn immense prestige and authority. It is needless to demonstrate in detail how many opportunities of aggrandisement through alleged magical prowess must have presented themselves in ancient societies' (p. 153). He points out, further, that 'in the oldest Indian cities we simply do not know how the communal surplus was accumulated or controlled. Military conquest is one means of assuring the accumulation of a surplus of wealth. But theories that regard it as an essential precondition of the Second Revolution must be regarded with reserve' (pp. 149, 150). There speaks the archaeologist-historian, who alone can discover what *did* or did *not* happen, as contrasted with the old-fashioned sociological theorist, who at the best can never go beyond what *might* have happened.

Here we must digress for a moment to consider Professor Childe's ideas of 'history' and 'progress'. At the beginning of the book he points out what a poor, maimed thing the old-fashioned 'history' was, confined as it was to isolated, disconnected chunks of national history, each apparently unrelated to the other; that the true current of human history is like a mighty river whose onward flow can only be observed when long stretches are examined (we are describing this process in our own words). Further, he shows that human history 'is seen growing out of the "natural sciences" of biology, palaeontology and geology', so that the same objective tests of 'progress' should be applicable as those which are in fact applied there to other species of animals. 'Now to a biologist progress, if he used the term, would mean success in the struggle for existence'. Survival of the fittest is a good evolutionary principle. A provisional test of the 'fitness' of a species 'would be to count its members over several generations. If the total numbers turn out to be increasing, the species may be regarded as successful; if the total is dwindling, it is condemned as a failure' (p. 11). Figures of this kind 'provide an objective criterion by which such an event as the Industrial Revolution may be judged . . . The chief aim of this book is to examine prehistory and ancient history from this angle. It is hoped that a consideration of revolutions so remote

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that it is impossible to get angry or enthusiastic about them, may help to vindicate the idea of progress against sentimentalists and mystics' (p. 16).

Tested thus, each of the economic revolutions described in this book is seen to be a success, for each was accompanied by a marked increase in the population of the communities concerned. The old nomadic hunting-communities were small in numbers; contrast with them the new growth of neolithic villages which grew up over the area between the Nile and the Indus. Then compare the size of those neolithic villages with that of the urban cities which succeeded them, often on the same spot. These are objective facts. They are historically associated with certain inventions. Who but an obscurantist would deny those changes the name of 'progress'?

Chapter 7 gives an admirable picture of the new conditions of life in an urban community. Now for the first time in history we meet with real towns. In most essentials those conditions continued with little change right down to the Industrial Revolution, a period of some five thousand years. Economic self-sufficiency had been sacrificed and a completely new economic structure was created. 'The surplus of home-grown products must not only suffice to exchange for exotic materials; it must also support a body of merchants and transport-workers engaged in obtaining these, and a body of specialized craftsmen to work the precious imports to the best advantage. And soon soldiers would be needed to protect the convoys and back up the merchants by force, scribes to keep records of transactions growing ever more complex, and State officials to reconcile conflicting interests' (p. 159). Archaeology builds up the picture. 'The most striking objects now unearthed are no longer the tools of agriculture and the chase and other products of domestic industry, but temple furniture, weapons, wheel-made pots, jewelry, and other manufactures turned out on a large scale by skilled artisans. As monuments we have, instead of huts and farmhouses, monumental tombs, temples, palaces and workshops. And in them we find all manner of exotic substances, not as rarities, but regularly imported and used in everyday life' (pp. 159, 160). This reflects a transformation in the economy that produced the material, and is accompanied, as it should be, by a rise in the population, as indicated by the size of the cities. 'Mohenjo-daro in Sindh, for example, spread over a square mile of land' (p. 160); the contemporary cemeteries tell the same tale in Mesopotamia and Egypt.

At Erech (Uruk) there was a succession of stratified neolithic villages,

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formed of the ruins of reed huts or mud-brick houses and occupying a vertical space of fifty feet. Then appears 'a truly monumental building—a temple or group of temples', and a ziggurat or artificial hill,¹ whose erection implies 'a large and disciplined force of labourers and craftsmen'. These people, being withdrawn from food-production, must have been supported from some common store of surplus food. 'Whose? Presumably it was already controlled by the power, we may perhaps say already "deity", to whose honour and glory the buildings were dedicated . . .

'But the erection of such a monument required more than labourers and their food. The whole was carefully planned. The artificial mountain was laid out with its corners to the cardinal points. A centralized directing force was requisite. The god being but a fictitious projection of the communal will, that force must have been supplied by his servants. Naturally enough the imaginary god has found earthly representatives and interpreters glad to administer and to enlarge his terrestrial possessions in exchange for a modest share of his income. The wizards and magicians, guessed at in neolithic villages, have emerged as a corporation of priests sanctified with divine authority and emancipated from any mundane labours in field or pasture. These interpret the divine will to the toiling masses or, in other words, twist the magic ceremonies, by which society would compel natural forces, into ever more complicated rites for conciliating the power that now personifies these'. (p. 163).

Out of these complex conditions emerged the invention of writing. It began as a system of mnemonic symbols invented by the priests to record their transactions; it developed through pictograms and ideograms to a regular system of writing. It seems to have been the temple corporations that were responsible for this development, which their own interests demanded, indeed necessitated. 'The Sumerian priests invented writing not in their capacity of ministers of superstition, but in that of administrators of a worldly estate' (p. 209). For the temple was more than a mere centre of superstitious rites; it functioned also, perhaps in fact primarily, as a great capitalist institution, the equivalent of a bank (p. 172). The currency was mainly grain; the earliest archives 'record the god's loans of seed or plough-animals to cultivators, the fields he has let to tenants, wages paid to brewers, boat-builders, spinners and other employees, advances of grain or bullion to travelling

¹ See *ANTIQUITY*, June 1936, pp. 139-41.

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merchants. The god is the richest member of the community. His wealth is available to the community from whose piety he, in fact, derived it. But the same piety required that the borrower should not only pay back the loan, but also add a little thank-offering. The god's ministers were doubtless careful to remind you of your duty, and even stipulated in advance what decency demanded you to offer' (p. 173).

From this it was a short step to kingship. 'By 3000 B.C. there is already emerging beside the deity in every city a temporal potentate. He styles himself humbly the god's "vicegerent", but also boldly "king". Perhaps he had once impersonated the god in those sacred dramas imagined above as a factor in the genesis of godhead . . . He has certainly usurped a substantial share of the god's temporal power over men. He even oppresses his subjects, according to quite early documents' (p. 173). But he performed useful functions as a civil ruler, perhaps reconciling conflicting class-interests, and he was also a military commander (p. 174).

Thus there grew up in Sumeria the world's first cities. At first they were independent, and at constant war with each other, the inevitable result of a contradiction between economic realities and political separatism. It was not until about 2000 B.C. that Babylonia became 'a political reality, a unified nation with a common capital, a common code of written law, a common calendar, and a permanent system of government'. That was the work of Hammurabi. 'Then at last the city-state was absorbed into the territorial state that corresponded on the whole to the realities of economic needs' (p. 175).

The Second Revolution in Egypt was approximately contemporary, occurring a little before 3000 B.C. (Menes, the founder of the 1st Dynasty and the unifier of Upper and Lower Egypt is put at 3400 B.C. by Breasted and 3200 B.C. by Meyer). But in Egypt the archaeological evidence is derived mainly from tombs, and we cannot trace the use of an urban economy with anything like so much certainty as in Mesopotamia. The earliest cities are buried under the Nile mud or have been looted and destroyed by later generations of builders. 'The reserve supplies required for the transformation of the economic system were not accumulated in the temples of a communal deity, but in the hands of a monarch who had already placed himself above the society from which he had arisen' (p. 176). Again the magicians appear in full command, and indeed 'in the archaeological record economic

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achievements and scientific discoveries appear only as applied to magical ends, as distorted in a ideological medium ' (p. 181).

Of the origins of the Second Revolution in India we know nothing, for ' the simpler villages and townships from which the cities have arisen remain unidentified. By 2500 B.C. the same uniform civilization extends from the mouth of the Indus throughout the lowlands of the Punjab right up to the foothills, but there is no evidence whether any political unity corresponded to this cultural uniformity. It is even uncertain what was the nucleus of capital accumulation. We have indications of a division into classes of rich and poor, but whether a king or a god stood at the head of the hierarchy is uncertain. Both temples and palaces are so inconspicuous among the ruins that their very existence is dubious ' (p. 189).

The revolution was probably contemporary in all three lands. There is archaeological proof of intercourse between them at the time. But ' urban civilization was not simply transplanted from one centre to another, but was in each an organic growth rooted in the local soil ' (p. 190). The process is compared by the author with the rise of mechanized industry and factory production which took place on both sides of the Atlantic at the time of the Third (Industrial) Revolution (p. 190).

When once the new urban economy had been established in the three primary centres, it spread thence to secondary centres in much the same way as Western Capitalism spread to colonies and economic dependencies (p. 191). The process is described in detail on pp. 191-5. Its propagation was in three ways. Economic demand for raw materials promoted the growth of ' industrial specialists ' to supply those needs and thereby share in the surplus. Or ' the Second Revolution was propagated by violence and imposed by the force of imperialism ' (p. 195), just as was the Third, for instance, by the British in India. Or it was propagated by provoking resistance to such attacks ; that resistance could only be successful ' by assimilating part of the civilization of the aggressors ' (p. 198).

In Chapter 8 (the Revolution in Human Knowledge) Professor Childe analyses the causes of the Second Revolution and its results. It ' had produced or accentuated a division of society into classes. In practice kings, priests, nobles, and generals stand opposed to peasants, fishermen, artisans and labourers. In this class-division the scribes belong to the former class ; writing is a " respectable " profession ' (p. 212).

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But this at once cut off the scribe from the living world of craftsmen and husbandmen to whose improvements in technique material progress in prehistoric times had been mainly due. It created a privileged class whose members alone had access to the 'learned sciences', which were thus divorced from practical life. To this must have been added the magical virtue attributed to the written word—a magic which would most surely be exploited to the full by those who held the key, just as it was—and indeed still is—exploited by the priests and mullahs of other religions. 'Thus learned men in the East, like schoolmen in our own Middle Ages, were apt to turn to books in preference to Nature . . . Instead of demanding that a book should be up-to-date and embody the latest discoveries, the Egyptian or Babylonian student valued it for its antiquity. A publisher would then advertise his wares not as a "new and revised edition", but as a faithful copy of a fabulously old text' (pp. 213-4). Thus began that 'great intellectual division of mankind' which, as Dr George Sarton truly says, 'is not along geographical or racial lines, but between those who understand and practise the experimental method and those who do not understand and do not practise it'. In other words, there was imposed upon society a Sacred Book of Knowledge containing 'all ye know and all ye need to know'. The artizan and the husbandman, hitherto the harbingers of progress, were superseded by a caste, allied to the ruling class if not actually part of it. Knowledge was fossilized in a bed of verbiage. Observation and experiment no longer directed the advance of humanity.

In passing we may observe that precisely the same phenomenon has occurred at other periods in history. St. Augustine said: 'Whatever knowledge man has acquired outside Holy Writ, if it be harmful it is there condemned; if it be wholesome, it is there contained'. All knowledge is subordinated to the study of 'Holy Writ'. Nature must be studied but only in so far as it is useful for understanding the Scriptures. A knowledge of serpents is useful because it helps us to understand Matthew x, 16, and of hyssop for understanding Psalm L, 9! The mechanical arts require no special study. 'In general it is not unfair to say that [St. Augustine] looks upon Nature simply as a possible aid to the understanding of the Bible'.² Today we have the magic books of Fascism (*Mein Kampf*) and Communism (Marx and Lenin), though it is fair to add that these works do at any rate deal with the

² Benjamin Farrington, *Science in Antiquity*, 1936, p. 242.

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practical problems of this world rather than with the imaginary ones of another. Yet salvation lies not in sacred books but in the understanding and practice of the experimental method: though certain obstacles have to be removed before this can be achieved.

The remainder of Chapter 8 is devoted to a very interesting account of early mathematics, impossible to summarize, concluding with notes on early astronomy and medicine ('the tradition that medicines must be disgusting is a survival of the demoniacal theory of disease, traceable in the oldest extant medical texts'! p. 250). In a Note on Magic, Religion and Science³ Professor Childe, quite rightly in my opinion, regards the distinction between magic and religion as one of convenience only. Whether the forces in question are impersonal mystic forces or personified as a god is surely immaterial. 'It is quite obvious that science did not, and could not, spring directly from either magic or religion. We have shown in detail that it originated in, and was at first identical with, the practical crafts. In so far as a craft like that of healing or astronomy was annexed to religion it was sterilized of scientific value' (p. 256). These are weighty words.

THE ACCELERATION AND RETARDATION OF PROGRESS

'Before the urban revolution comparatively poor and illiterate communities had made an impressive series of contributions to man's progress', such as 'artificial irrigation using canals and ditches; the plough; the harnessing of animal motive-power; the sailing-boat; wheeled vehicles; orchard-husbandry; fermentation; the production and use of copper; bricks; the arch; glazing; the seal; and in the earliest stages of the revolution—a solar calendar, writing, numeral notation, and bronze'.

'The two thousand years after the revolution—say from 2600 to 600 B.C.—produced few contributions of anything like comparable importance to human progress. Perhaps only four achievements deserve to be put in the same category as the fifteen just enumerated. They are: the "decimal notation" of Babylonia (about 2000 B.C.); an economical method for smelting iron on an industrial scale (1400 B.C.); a truly alphabetic script (1300 B.C.); aqueducts for supplying water to cities (700 B.C.)'. But only two of these four discoveries can 'be credited to the societies that had initiated and first reaped the fruits of the urban revolution' (pp. 257, 8). 'We are left then with only two

³ The reference to p. 67 should surely be to p. 62.

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first-rate discoveries made by societies equipped with all the advantages of the fifteen mutations that were unified in the urban revolution. Viewed in this light the achievements of Egypt, Babylonia, and their immediate cultural dependencies appear disappointing from the standpoint of human progress. Contrasting progress before and after it, the Second Revolution seems to mark, not the dawn of a new era of accelerated advance, but the culmination and arrest of an earlier period of growth. Yet the Oriental societies had been equipped by the revolution with unprecedented resources and a new faculty of transmitting and accumulating knowledge'. (p. 259).

The explanation of this arrested growth is to be sought in the structure of society as it emerged during the Second Revolution. It had become a class society, dominated by those who controlled the surplus. That involved the degradation of the mass of the population, those productive craftsmen whose fertile brains and clever hands had actually brought about the Second Revolution. Now 'their share in the new wealth was minimal, and socially they were sinking toward the status of tenants or even serfs'. (p. 259). A new army of specialized, non-foodproducing craftsmen and labourers had come into existence, dependent for its livelihood upon the surplus controlled by the ruling class. Though the revolution which their comrades had created was the ultimate cause of the surplus, 'the fraction which came to them was again trifling' (p. 260). The substantial balance 'was retained by the few—the kings, the priests, their relatives, and favourites . . . [The class division] is typified for the archaeologist by the contrast between the overpowering magnificence of royal tombs and the simplicity of private graves in Egypt, or by that between the luxurious houses of merchants and the hovels of artisans in an Indus city' (p. 260). No such contrasts can be observed in earlier times.

Professor Childe is careful to point out that this concentration of power may have been 'essential to ensure the production of the requisite surplus resources and to make these available for effective social use' (p. 259). Further, that 'by the biological standard here adopted the urban revolution is amply justified in its effects, even if those effects include the class division just outlined' (p. 260). Nevertheless the result was a retardation of progress, caused precisely by that class-division; for the ruling classes who now emerged owed their power largely to the exploitation of just those superstitions, in the teeth of which improvements in production-processes had been made. Their affiliations were with priest-craft and superstition, and they could not

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be expected to be patrons of rational science. Moreover, the motive was lacking; labour was cheap and abundant, and could be kept obedient by means of religion, 'the opium of the people'. A potentially dangerous surplus population could be set to work on useless monuments of superstition like the Pyramids.

Subsequent developments followed the normal course towards imperialism. Both Egypt and Babylonia had to obtain their raw materials from outside their own territory. 'Eventually attempts were made to annex the sources of supplies and to conquer the exporting countries'. The empires thus constituted 'undoubtedly contributed to human progress' (p. 264), but they contained a contradiction. 'The persistence with which the subject peoples revolted is a measure of their gratitude for the benefits' previously enumerated. Actually it is probable that empires like that of Sargon destroyed more wealth than they created. They were little more than tribute-collecting machines, interfering just so much in the affairs of subject peoples as was necessary to maintain 'law and order' and to secure the regular payment of taxes.

On almost the last page of the book (p. 268) Professor Childe summarizes in a few admirable words the chief outcome of all this. 'The urban revolution, made possible by science, was exploited by superstition. The principal beneficiaries from the achievements of farmers and artisans were priests and kings. Magic rather than science was thereby enthroned and invested with the authority of temporal power.

'It is as futile to deplore the superstitions of the past as it is to complain of the unsightly scaffolding essential to the erection of a beautiful building. It is childish to ask why man did not progress straight from the squalor of a "pre-class" society to the glories of a classless paradise, nowhere fully realized as yet. Perhaps the conflicts and contradictions, above revealed, themselves constitute the dialectics of progress. In any case, they are the facts of history. If we dislike them, that does not mean that progress is a delusion, but merely that we have understood neither the facts nor progress nor man. Man made the superstitions and the institutions of oppression as much as he made the sciences and the instruments of production. In both alike he was expressing himself, finding himself, making himself'.

So we reach the end of an admirably sane, lucid and unbiassed account of human history. We see the instruments of production shaping the society to which their inventors belong and determining the social relationships within it. We witness the birth of class divisions 5000 years ago, and the retardation which followed. And certain

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questions inevitably obtrude themselves. If the instruments of production effected so much then, what social changes should we expect to result from the Third (Industrial) Revolution? The answer is being written today on the map of the world in letters of blood. But it becomes intelligible only to those who have a sure grasp of the main, essential facts of human history as a whole. Then the forces arrayed against each other can be seen in their true historical relationships, and against their economic background, unobscured by nationalist, political or religious façades.

Professor Childe's book can be described as 'Marxist' in the only proper sense of the word; that is to say, it is the sort of book that Marx himself would have written if he were alive today, and therefore had access to all those rich stores of new knowledge that have been created by the archaeologist and historian during the last fifty years. When he wrote this knowledge was not available. It simply was not possible to say through what stages of development human society had passed, actually and as a matter of historical fact. It was merely possible to make certain guesses based upon the analogy of existing 'primitive' tribes. Now the 'argument by analogy' is based upon an assumption—that phases of society observed today represent phases historically enacted by the communities from whom our present culture is derived. That assumption cannot be proved, and is frequently found to be erroneous. In any case it is unscientific and inconclusive. We prefer the story of what *did* happen to speculations about what *might* have happened; we prefer the findings of modern science to the pioneer gropings, however valuable at the time, of writers like Lewis Morgan. Consequently we regard Professor Childe's book as the most stimulating, original and convincing contribution to the history of civilization which we have ever read. That is why we have devoted so much space to it here. We hope that all readers of this summary will buy the book itself.

Mycenae

by A. J. B. WACE

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THE plain of Argos is roughly triangular in shape. The base lies along the sea coast from Lerna to Nauplia and the apex is at Mycenae, which thus overlooks the Argive plain as Deceleia overlooks the Attic. The traveller, who, like Pausanias, approaches Argolis from the northeast by way of Corinth and Nemea and sees, as he emerges from the Tretos defile, the Argive plain opening before him to the southeast, will notice among the foothills to his left a rather inconspicuous, but isolated hill standing out between two steep and rocky conical peaks. This is the citadel of Mycenae. It owes its strength to its natural position, which is easily defensible, and it has an ample supply of fresh water from the spring Perseia running into an underground cistern reached by a secret passage. There were also three wells within the walls and at least one rain-water cistern. No enemy can hope to approach its walls in any force without being observed, and its distance from the coast precludes any danger of surprise from the sea. As a seat of power it is admirably placed. It dominates the Argive plain and it controls the routes that lead northeast to Corinth and the rich districts easily accessible thence, the fertile littoral of Achaia or the Boeotian coast with the central Greek plain behind. The site was thus naturally inhabited early in the Bronze Age, probably from the very beginning of that age on the Mainland of Greece about 2800 B.C., and round it on the outlying hills were neighbouring settlements so that the district even then must have been fairly well populated.

In the Middle Bronze Age (about 2000–1600 B.C.) when the first Greek-speaking people seem to have entered Greece, Mycenae was continuously occupied and, though no buildings except a few broken walls survive, pottery of the period is common and many tombs have been found. The most important cemetery of this age lies about half way down the western slope of the citadel where the royal tombs known as the Shaft Graves were afterwards made. The hard limestone rock which forms the summit of the hill stops just at this point on the side of the citadel and the lower slope consists of a soft friable conglomerate. In this graves could easily be dug whereas the hard limestone was quite unsuitable for such a purpose. Here some four

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hundred years or more before the great citadel wall was built the people of the Middle Bronze Age buried their dead. Many graves have been found around the royal Shaft Graves and others under the later houses to the south, and the cemetery probably extended further westwards down the slope outside the citadel wall.

At the close of the Middle Bronze Age and at the beginning of the Late Bronze Age Mycenae grew greatly in power, wealth, and importance. Its kings from the later years of the 17th century B.C., till towards the close of the 16th century, were buried with other members of their families in Shaft Graves dug in the midst of the old Middle Bronze Age cemetery. These are the famous royal tombs, the richest archaeological find yet made in Greece, which Schliemann discovered in 1876. These graves are, as their name implies, shafts which vary considerably in depth and in size according to the number of persons laid in them. The Fourth Grave, which contained five bodies, measures 6.55 m. by 4.10 m. and is 2.30 m. deep. The Fifth Grave, which contained three persons, is 5.77 m. by 2.85 m. and is 3.10 m. deep. The Second Grave, which held one body, is only 3.05 m. by 2.15 m. and barely 1.00 m. deep. It is thus not much larger than one of the ordinary private graves of the Middle Bronze Age of the same cemetery and like them its walls were lined with large pieces of schist. The Shaft Graves are in fact enlarged or royal versions of the ordinary type of grave. Another Shaft Grave which had been plundered of most of its contents was discovered outside the Grave Circle, just to the north but within the citadel wall and beneath the floor of a later building thought to be a granary or storehouse. This grave was probably slightly later in date than the royal graves and is smaller than they are, but is larger than the ordinary Middle Bronze Age grave and so may have been made for a noble or high official.

The treasures of the Shaft Graves, both material and archaeological, are too well known to need further description. The faces of the dead were covered with gold masks and their bodies with golden breastplates. The men had long bronze swords ornamented with hilts of crystal and gold, scabbards decked with engraved gold plates, and daggers inlaid with hunting scenes of vivid artistry in gold and silver. There were engraved signet rings and jewellery of gold, and pins and toilet articles were adorned with the same metal. There were drinking cups of gold including the famous goblet with doves on the rim like Nestor's cup in Homer and a large jug of beaten silver. Three great cups or rhytons were made for rites or ceremonies, a long funnel-shaped

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silver vessel bound with gold and chased with the well known siege scene, a bull's head vessel in silver with golden horns and inlay, and another of gold in the form of a lion's head. There are objects of alabaster, ivory, wood, and faience and a splendid series of large vessels of bronze, cauldrons, ewers, and basins. The grave stelai carved in relief which marked the tombs are also of great archaeological value and display scenes of war and the chase. It is impossible to dwell here on



FIG. 1. MAP OF ARGOLIS (after Schliemann, *Mycenae and Tiryns*)

the importance of all these as works of art. The craftsmanship throughout is of a high standard, and the representations of abstract ornament and of human and animal figures reach the highest level of art; and not even Pheidias or Cellini could have surpassed the magnificent lions on one of the daggers.

At the beginning of the 14th century when the third phase of the Late Bronze Age opened, Mycenae, already wealthy and powerful,

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became the centre of the Aegean culture on the downfall of Knossos. The Mainland of Greece had been in touch with the Cretan civilization since the latter part of the Middle Bronze Age and its inhabitants had adapted the Cretan culture to their use, blending it with their own. They had borrowed also the Minoan alphabet, all just as the Etruscans some centuries later borrowed and adapted the Greek alphabet and culture. So during the first two phases of the Late Bronze Age Cretan culture was popular at Mycenae and foreign fashions overshadowed the native. After the downfall of Crete the local style re-emerged, as the extravagance of the Cretan baroque exhausted itself and decayed.

Mycenaean art in its simplicity and dignity foreshadows classical Greek art which, like it, is foreign to the florid exuberance of Crete. The rulers of this latest Mycenae were great builders. To them are due the cyclopean fortifications of the citadel, the palace, the ruins of which crown its summit, and the finest of the beehive tombs.

The citadel of Mycenae is roughly triangular and at its northwest angle is the Lion Gate, the main entrance. It is so placed that any enemy approaching is overlooked by a long stretch of wall on his left hand and on his right by a great bastion thrown out just before the gate. The gate itself (just over ten feet high and ten feet wide) is formed of four huge blocks of hard conglomerate and the bastion and wall by it are constructed of ashlar work of the same material. The individual blocks are enormous and weigh from three or four tons upwards. Over the lintel is set the famous relief of the twin lions guarding the sacred pillar, carved in hard limestone by saw, by hollow drill, and by chisel, but by no metal harder than bronze. The gateway within was roofed and on the left there is a small chamber for the gatekeepers. On the right is a large building of two storeys, probably a storehouse or granary. Immediately in front a great ramp, supported by a lofty cyclopean wall, carries the road up towards the palace on the summit. Below the ramp lies the Grave Circle. When, early in the fourteenth century, the great fortifications with the Lion Gate were planned, the natural line of defence would have carried the wall straight through the middle of the area occupied by the six royal graves which were sacred. Consequently, just within the Lion Gate, the citadel wall was made to bow out westwards in a wide curve so as to enclose the royal graves. The slope where the royal graves lay was levelled by building a curved retaining wall on the west and by filling up the hollow within it with earth and rubbish dug away from the higher slope to the east. Then a double circle of upright slabs roofed with horizontal slabs was erected



TOMBSTONE FROM THE FIFTH SHAFT AT MYCENAE (about 1300 B.C.)
(after Schliemann, 'Mycenae and Tiryns')

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round the six graves, a stately entrance to the circle was made, the sculptured tombstones originally placed over the graves were reset at the higher level of the new circle, and the whole became a sacred area the tradition of which seems to have lasted till the time of Pausanias. It was this tradition which inspired Schliemann to concentrate his efforts here and so led to the rediscovery of the great Bronze Age civilization of Greece, the glories of which are recorded by Homer.

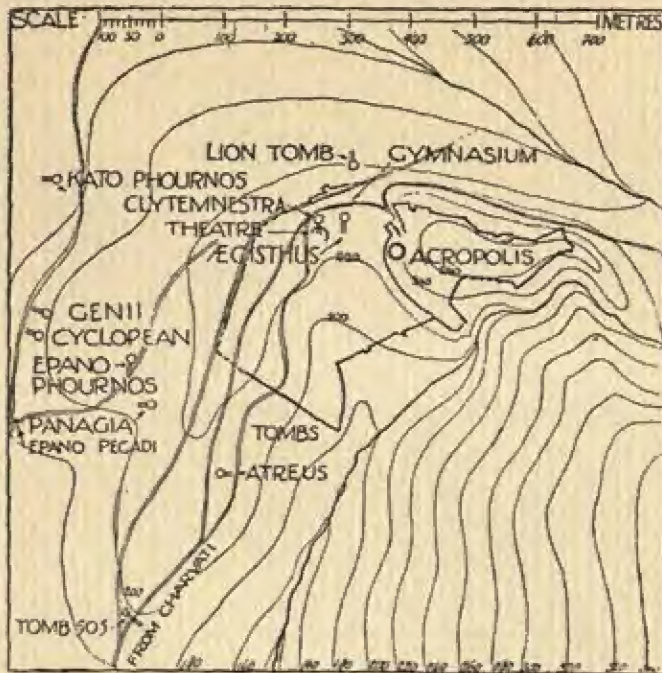


FIG. 2. MYCENAE: sketch-plan showing the relationship of the Bronze Age Acropolis and Hellenistic lower town and positions of the nine Tholos tombs
From *Annual of British School at Athens*, by permission

South of the Grave Circle there were private houses within the citadel and many others lay within the enceinte. It is incorrect, however, to call Mycenae a city. It was really a citadel containing the palace of the king with houses and quarters for his court, principal officials, guards, and attendants, together with the necessary servants or slaves. It was a royal fortress similar to the Tower of London or Edinburgh Castle and had no true civilian population.

The road which advances up the ramp ascended the hill in zigzags

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towards the palace on the summit. Its entrance lay at its northwest angle where remains of a pillared portico have been found. Thence the entrance way ran southwards along the top of a terrace wall from which two ascending corridors branched eastwards to the upper floors. From the southern corridor a side passage led to the official part of the palace laid out on a wide terrace partly cut out of the hillside, partly built up on the support of the citadel wall, which here ran along the brow of the precipice. The official part comprised a large open court with a great hall or megaron on its east. The megaron consisted of a pillared porch, a vestibule, and the megaron proper, with a central hearth of painted stucco surrounded by four columns. The megaron and the vestibule were paved with gypsum slabs and painted stucco and the walls were covered with frescoes, as were also those of the other principal rooms. From the north side of the megaron porch a staircase led up to private apartments which included a bathroom. On the west side of the court was a small state room, floored with painted stucco with a place for a throne, and approached by a broad staircase of two flights coming up from a lower bend of the zigzag roadway. There were at least two storeys in the palace as the staircases prove. Traces of a shrine have been found and of storerooms, and some large column bases lying on the summit indicate that there once stood some large apartment.

The existing palace succeeded an earlier palace which was swept away when the rock was terraced and levelled early in the fourteenth century. It was laid out on a bold and comprehensive scheme. Some alterations were made before its destruction at the fall of Mycenae, but the principal change seems to have been on the terrace now occupied by the megaron and court. The great staircase which ascends directly to them from the zigzag road is out of alignment with the court and megaron but apparently parallel to the road. It was probably built after the original structure here had been damaged or destroyed by a fire which also affected the court. The most striking feature of the palace is its consistent and obviously architectural plan which is in strong contrast with the patent lack of definite plan in Bronze Age buildings in Crete.

The palace standing on the rocky peak of the hill cuts the main area of the citadel into two portions. That to the west is the larger and there lie the Lion Gate, the Grave Circle, and private houses with the road ascending to the palace. To the east of the palace there are the ruins of more houses on the terraced slope, and one of these, which

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SKETCH RESTORATION OF GRAVE CIRCLE JUST AFTER COMPLETION

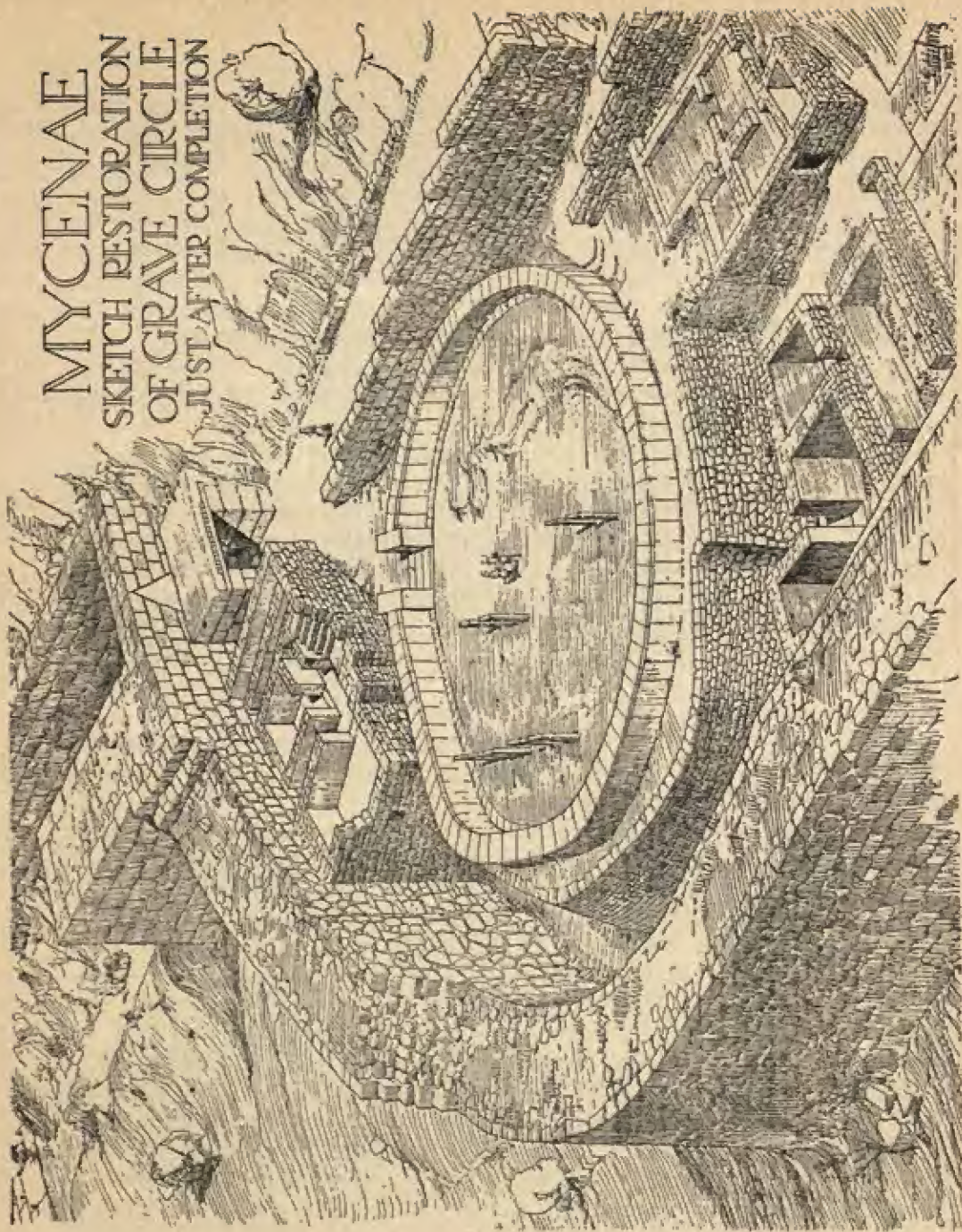


FIG. 3. GRAVE CIRCLE, MYCENAE.
From Annual of British School at Athens, by permission

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apparently had a colonnaded court like the palace at Tiryns, seems to have been of considerable size. The northeast corner of the enceinte is an addition made, perhaps in the thirteenth century, to strengthen the defences and to afford efficient protection for the secret approach under the walls to the subterranean cistern outside, which provided an unfailing supply of water in case of siege. On the north side below the palace was the second gate of the citadel, the so-called postern gate, which is smaller than the Lion Gate but like it placed at a set-back in the line of wall so that it could be more easily defended. The way to it within the walls was also thoroughly guarded. There is too a small sallyport on the south side of the northeast angle carefully placed so that it would not be too obvious to an approaching foe.

Outside the citadel there was no lower town in prehistoric times as was once believed, but apparently the civilian population lived in small hamlets scattered about the country wherever a favourable situation offered. One such was the Kalkani hill which lay to the west near the spring called Epano Pegadi and was inhabited throughout the Bronze Age. In the Late Bronze Age the inhabitants of these settlements buried their dead in groups of tombs which were dug out of the soft rock of the hill sides in the form of chambers entered by narrow passages. These were family tombs and were used by generation after generation from the sixteenth century down to the fall of Mycenae. Scientific excavation of these tombs has given a vivid picture of Mycenaean funeral customs and rich finds of bronzes, gems, gold jewellery, weapons, carved ivory, and painted pottery.

The most imposing monuments outside the walls are, however, the nine beehive tombs. These were the graves of kings who succeeded those buried in the Shaft Graves. The beehive tombs are royal or elaborate versions of the private citizens' chamber tombs. They are dug out in the same manner in the hill sides, but are lined with circles of vaulted masonry, and are entered by imposing doorways spanned by huge stone lintels. The earliest, which date from the turn of the sixteenth and fifteenth centuries, are built in a cyclopean manner of undressed stone except the largest, the so-called Tomb of Aegisthus, which lies just below the Lion Gate and has a façade of ashlar work in limestone added some time after its first construction. The tombs of the second group of three are built in a more solid manner with dressed or partly dressed stone, and all have doorways of ashlar work in limestone and conglomerate with massive lintels and relieving triangles above. The largest and latest of this group, the Lion Tomb, which

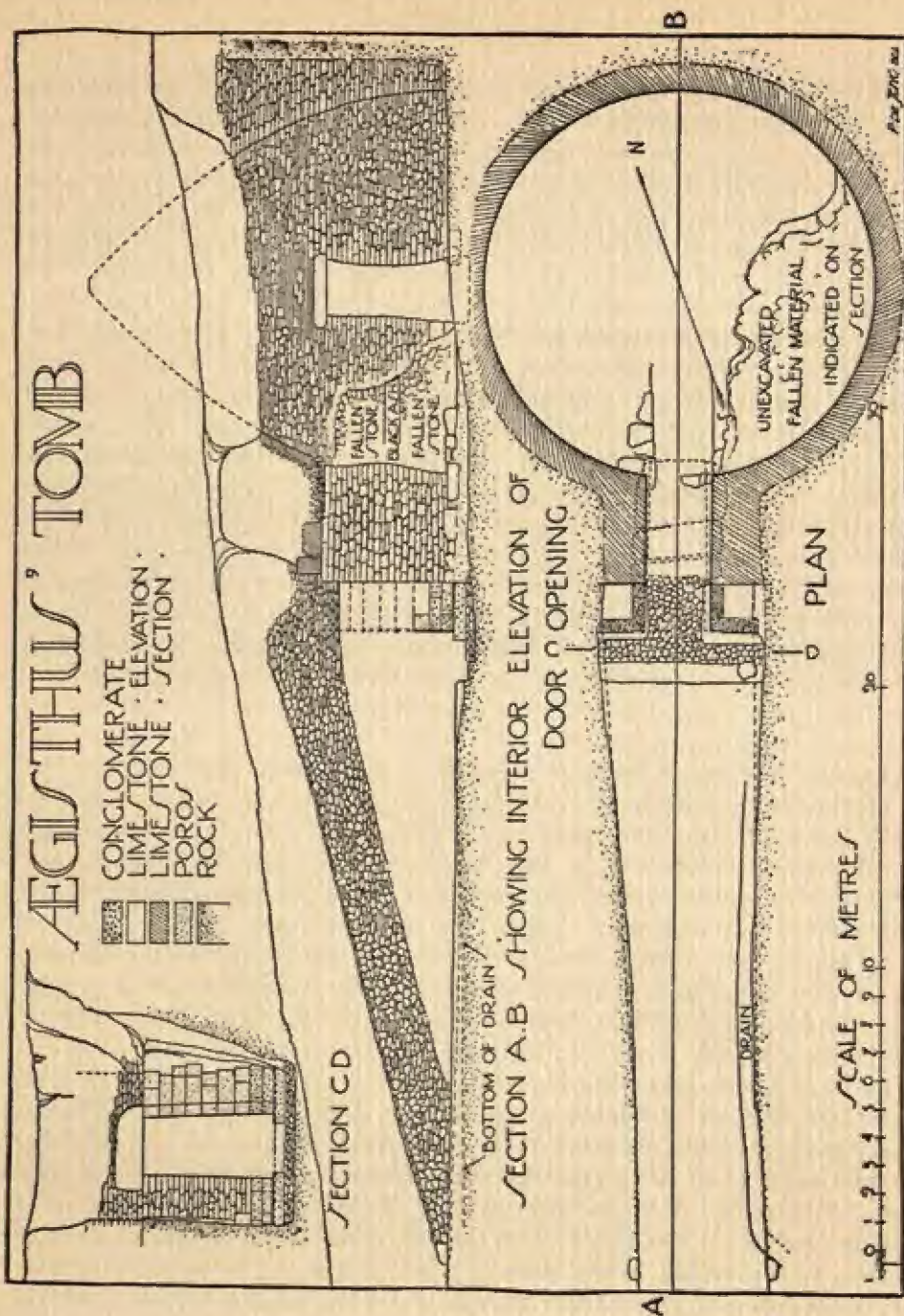


FIG. 4. TOMB OF AEGISTHUS
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lies just north of the Lion Gate, is about fourteen metres in diameter and its doorway was most solidly built and was closed by an actual door. Its entrance-passage too was lined with ashlar work in limestone. The last group, which dates from the fourteenth century, includes the two most famous monuments of Mycenae—the Treasury of Atreus and the Tomb of Clytemnestra. The three tombs of this group are built throughout of hard conglomerate in the most massive manner. The smallest and earliest, the Tomb of Genii, is in almost perfect condition and the next in point of date, the Treasury of Atreus, is also in amazing condition after all the vicissitudes of over three thousand years. Many of the enormous blocks of conglomerate are sawn, and the great lintel that spans the lofty door weighs over one hundred tons. The façade was ornamented with reliefs of coloured stone and with decorated columns of green limestone. The tomb is 14.50 metres in diameter and only slightly less in height. The entrance passage, thirty-six metres long, is faced with walls of solid dressed conglomerate. The Tomb of Clytemnestra, which has lost the summit of its dome, is similar to the Treasury of Atreus but slightly more refined in construction and is not quite so large, being but 13.40 m. in diameter. These tombs show a gradually progressive skill in building and engineering which is indicated by the more ruinous condition of the earlier in contrast with the wonderful condition of the later tombs, due to the solidity of their construction. They are a permanent testimony to the fine craftsmanship of the Bronze Age masons and builders, working as they did without the aid of iron and to the careful planning and calculation of their architects and engineers. These buildings alone are enough to demonstrate the high degree of intellectual attainment which the people of Mycenae had reached by the fourteenth century. If, as is now generally accepted, the first Greeks entered Greece in the Middle Bronze Age, these achievements are the earliest evidence of the genius of the Greeks in architecture and in intellect. Each of these beehive tombs was probably built by a king during his reign as a tomb for himself and his immediate family, and after his interment the vault was closed with a wall of masonry across the doorway and the entrance passage was then filled with earth to prevent unlawful access. Probably, too, divine honours were paid to the departed monarch at the site of his burial. In the troubles that followed the fall of Mycenae the tombs were entered and plundered, but the tradition of their treasures was recorded by Pausanias in the second century A.D. The woman's grave in the entrance passage of the Tomb of Clytemnestra, which escaped

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the tomb robbers and contained many gold ornaments and two bronze mirrors with handles of carved ivory, hints at the riches which the great vaults themselves once held.

The treasury of Atreus is so similar in construction to the Lion Gate that it is hard to resist the conclusion that they are approximately contemporary. The Lion Gate and the citadel walls (except for the northeast extension) are homogeneous and all part of one definite plan. The palace too is closely connected with the citadel since the wall served to support the terrace on which the megaron was erected. Thus it is tempting to think of all these great works, the Lion Gate and citadel wall with the Grave Circle, the palace, and the Treasury of Atreus as having been built for a powerful king who had ample means at his disposal and also the services of highly skilled architects and engineers. So uniform is the planning and construction that the whole gigantic plan may have been conceived and laid out by the brain of one genius who was given this unparalleled opportunity by the pride and wealth of the monarch he served. So comprehensive a scheme of building is similar to that which the Athenians undertook under the inspiration of Pericles when they rebuilt the temples of their acropolis with the genius of Pheidias and Iktinos. The kings of Mycenae seem to have owed their wealth and power to the fact that in the neighbourhood of the citadel copper was to be found which made Mycenae an important early centre of bronze-working. This would have given a progressive race of princes at the head of an intelligent people the means of gratifying artistic, political, and military ambition.

Troy fell early in the twelfth century before a Greek confederation with Agamemnon of Mycenae at its head, and at the close of the same century Mycenae too seems to have fallen into the hands of enemies. Its palace and houses perished by fire and its royal tombs were plundered. This occurred at the beginning of the transition from the Bronze to the Iron Age and during the troubles which Greek tradition associated with the coming of the Dorians, another wave of the Greek-speaking people. The walls of Mycenae were not destroyed, but Mycenae lost her power and importance, for Dorian Argos took her place. Still, as a small city state, Mycenae preserved her independence during the Early Iron Age and through the archaic period to just after the battle of Plataea. The scanty remains show that she passed through the same stages of cultural development as other Greek states, and a series of fragments of much damaged reliefs found in the summit of the citadel, dating from the third quarter of the seventh century, rank among the

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earliest examples of Greek sculpture in relief. On the summit of the acropolis above the ruins of the Bronze Age palace a Doric temple dedicated to Athena was built, probably in the sixth century, and there was also a shrine of the hero Perseus. This city-state, being naturally hostile to Dorian Argos, followed the old tradition of the Atreidai in close friendship with Sparta. Unlike Argos, which favoured Persia, Mycenae sent its small contingent of men to aid in the panhellenic struggle against the invading Xerxes. Thus the name of Mycenae appears on the roll of honour of the Greek states on the serpent column erected at Delphi to bear the golden tripod dedicated to Apollo as a thankoffering for the decisive victory of Plataea. Mycenae's patriotism was her ruin. A few years later, about 470 B.C., when her ally Sparta was crippled by a disastrous earthquake and a Messenian revolt, Argos seized her opportunity to destroy her rival, weak in resources, but great in fame. She besieged Mycenae. The citadel was starved out. The walls were dismantled and the buildings, except probably the temple of Athena, were overthrown. Over two hundred years later, when the tyrants of Argos were constantly at war with the Achaean League, Mycenae was reoccupied as a small town dependent on Argos. The walls of the citadel were patched and part of the hillside and ridge immediately to the southwest were enclosed to make a lower town. In the hollow over the unnoticed Tomb of Clytemnestra a small theatre was built and on the ridge behind a gymnasium. On the fall of her tyrants Argos with Mycenae came into the hands of Nabis, tyrant of Sparta who ruled them harshly. After Argos was freed from Nabis in 195 B.C. history makes no mention of Mycenae. Later writers believed it to be desolate and Pausanias, who visited it in the second century A.D., does not speak of habitation. Some remains of the early Roman imperial period have been found which would imply at least a small population. Soon after, however, it must have become entirely deserted. The identity of the site was never lost and so when European travellers in modern times began to visit Greece Mycenae was naturally one of their goals. The ruins were plundered by British peers and Turkish pashas in search of treasure and not till Schliemann came in 1874 was scientific excavation begun. This, under Schliemann's inspiration, has rediscovered for mankind the long forgotten civilization of Bronze Age Greece, the golden and heroic age dreamt of by classical Hellas.

The Recent Excavations at Avebury

by ALEXANDER KEILLER and STUART PIGGOTT

THE most impressive megalithic monument in the world, which has come to be known as the 'Avebury Complex', lies on a spur of the Middle Chalk running northwestwards from the main massif of the North Wiltshire Downs. Immediately to the west runs the river Kennet. The monument consists of an approximately circular bank with a ditch on its inner side enclosing a level area of 28½ acres. On the inner edge of the ditch stood a circle of standing stones. Inside the circle again stood two interior settings of standing stones, each consisting of a double concentric circle, that to the north having in its centre three stones forming the so-called 'Cove', and that to the south a monolith. There was one original entrance through the bank and across the ditch at the south, and to this entrance an avenue (usually called 'The West Kennet Avenue') consisting of a double line of standing stones placed in pairs, averaging 50 feet apart transversely, and at average longitudinal intervals of 80 feet, led for a distance of over a mile from two small concentric stone circles on Overton Hill, known as 'The Sanctuary'.

A second avenue, 'The Beckhampton Avenue', has sometimes been claimed to have run to the Avebury circles from the southwest, where two stones, 'The Longstones', stand, and were considered by Stukeley to be part of such an avenue. In the writers' opinion, however, it seems more likely that, as originally suggested by Schuchhardt many years ago,¹ the Beckhampton standing stones represent the remains of an independent stone circle with an avenue, of which Stukeley saw the remains, running from it towards the Kennet. It seems very improbable that an avenue to the Avebury Circles should have crossed the river as the assumed Beckhampton course would make it do, and the suggested interpretation has parallels at Stanton Drew, and, indeed, at Stonehenge itself.

In the case of Avebury the source of the stones was purely local.

¹ *Prähistorische Zeitschrift*, 1910, II, 315.

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These were derived from the isolated boulders of the resili-cified silicious sandstone known as 'sarsen'. It would appear probable that to avoid the steep gradients entailed by a direct route the stones were transported to Avebury along the line followed by the West Kennet Avenue, presumably by means of haulage and rollers—a method of transport which in the case even of the larger stones has been proved by the writers, by experiment, to entail considerably less labour on level ground than might be supposed.

Excavations in the West Kennet Avenue were begun in 1934 by The Morven Institute of Archaeological Research under the joint direction of the writers. The primary purpose of these excavations was to establish the exact course followed by the avenue, and furthermore, if possible, to arrive at a definite date and culture for the construction of the monument. The opportunity was taken by the excavators of re-erecting all fallen stones, and stones which, as will be later described, were found to have been buried (FIG. 11). The entire course of the northern third of the avenue had been exposed by the end of 1935. Prior to excavation the only visible signs existing, for even the approximate course of this part of the avenue, consisted of three standing stones and nine others which were lying prone; a tenth had fallen and had been re-erected in 1912, but in an incorrect position as well as upside down.² The evidence on which the excavators relied was naturally the discovery of the stoneholes or sockets in which stones had stood. All except one of these were satisfactorily identified; in the case of this stonehole (no. 15)³ there is no reason to suppose that no stone stood between nos. 13 and 17, but it may be presumed that the stonehole was so shallow as not to penetrate the subsoil.

The line of the avenue was found to have taken a different course from that which had been previously assumed. Its course was tortuous but not sinuous, being laid out in a series of relatively straight sections of varying lengths, and can better be followed by reference to the plan (facing p. 418) than from a verbal description or even by observation on the ground. It will be seen that the disposition of the stones becomes curiously irregular in the last section as the Avenue approaches the Circle, the longitudinal measurements increasing, and the breadth being

² *Wilts. Arch. Mag.*, xxxviii, 7.

³ The numbering of stoneholes and stones used in this article is that adopted for convenience during the excavations and begins from the southern end of the excavated portion, the left-hand stone to an observer facing Avebury being no. 1 and the right-hand no. 2 and so on.

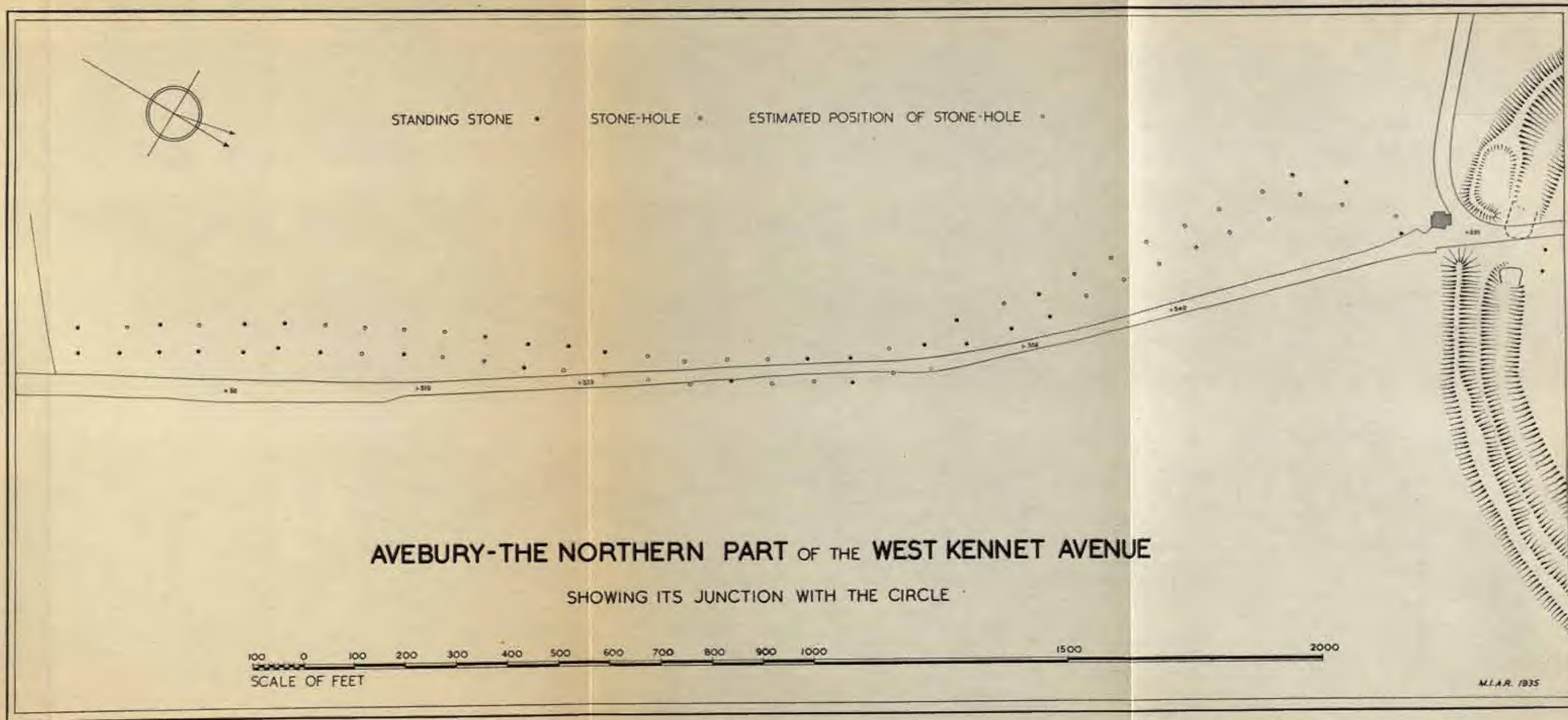


FIG. 1.

THE RECENT EXCAVATIONS AT AVEBURY

reduced between the last pair of stones to only 34 feet. Aubrey's plans suggest a similar arrangement at the junction of the Avenue with the circles on Overton Hill, while the narrowing at least was confirmed during the excavation of this site.⁴ It is clear that the two massive stones of the outer Avebury Circle standing immediately behind the original causeway of the great ditch served as portal stones to the monument.

The stoneholes themselves must not be considered as cavities in which the stones were inserted for support, as might be the case with a posthole, but were uniformly rather shallow excavations into which, save in the case of certain flat-bottomed megaliths, were inserted entire boulders, fractured blocks of stone, or other packing material, to ensure greater stability. Considerable light was thrown during the excavations on the methods employed by the original erectors, impressions in the chalk to take supporting beams of timber, as well as stakeholes, being, in several cases, clearly visible. These stakeholes may be divided into two types. The first was represented by those situated some distance from the stoneholes themselves, which held stakes of considerable diameter, doubtless used for taking up the strain on ropes employed during the actual erection (32 on FIG. 2). The other type was considerably smaller in diameter than the foregoing, and held small stakes which were also used during erection but for reducing the friction of the stone against the wall of the stonehole (FIGS. 5 and 6). Groups of these were found in three stoneholes, in each case arranged in a roughly semicircular form against the steeper side (Nos. 21, 22; and 38 on FIG. 2).

When Aubrey first visited Avebury in 1648 all the stones of the Avenue, standing or fallen, seem to have been still in existence, but nevertheless, deliberate destruction would appear to have begun about this time, and many of the stones broken up either by simple fracture or the more complicated method, which has been so graphically described by both Aubrey and Stukeley, of heating the stone and striking along a line marked out by cold water. Ample evidence, during the excavations, of this method of destruction was recovered in the form of the blackened sides of pits dug beneath the prostrate stones, burnt fragments of sarsen, and even piles of charred straw. No more vivid representation of the whole process can be imagined than a spirited drawing by Dr Stukeley (FIG. 12), hitherto unpublished, and obviously the work of an eye-witness.

Presumably about the same time or at a somewhat earlier date

⁴ *Wilts. Arch. Mag.*, XLV, 306.

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farmers, in order to facilitate ploughing, buried certain of the stones where they lay. The existence of these had in the meantime been forgotten but they were uncovered during the excavations, and together with all stones still lying on the surface were re-erected in their original stoneholes (FIG. 10).

The stones of the monument of Avebury have hitherto been erroneously referred to as 'rough unhewn blocks of sarsen'. Actually these megaliths have been dressed, and very carefully dressed, although not, it should be noted, to the flat surface obtained at Stonehenge. Moreover there can be no question but that the stones were dressed deliberately to conform to certain required shapes, and to this end stones were in the first place selected as near to the required form as possible, with a resultant economy in the labour of the final dressing. Space forbids a detailed discussion here on the question of the shapes to which the stones were formed, and it will suffice to say that these may be divided into two main types, which may be termed type A and type B, each retaining certain apparently essential features in every example. Broadly speaking type A (FIG. 10) takes the form of a tall stone considerably higher than it is broad, while type B (FIG. 9) is broader in proportion to its height, the most distinct examples resembling to a certain extent an asymmetrical diamond in shape.⁵ A well-contrasted pair actually face each other in the avenue, nos. 49 and 50. As regards size, this would not appear to have been a matter of great significance to the original builders, since even stones next each other often provide a startling contrast in this respect, although pairs of stones in the avenue compare closely the one to the other in height.

Two stones, and possibly a third, were found to bear ornament of 'cup and ring' type—circles made in 'pocked' technique (no. 2 of Burkitt's sequence of Irish techniques in *IPEK*, 1926, 52) usually but not invariably surrounding a central spot. Two well-preserved examples (FIG. 7) show irregular double concentric circles surrounding a pair of depressions, of which in each instance one is a natural hole in the sarsen and the other artificially worked. Such ornament is well-known in Early Bronze Age contexts in north Britain, but hitherto it has not been recognized from southern megaliths.

From the outset it had, as has been said, been the hope of the excavators that evidence bearing on the date of the avenue might be

⁵ It is significant that stones have since been recognized to have been dressed to these forms in stone circles as far apart as Cornwall and Cumberland.

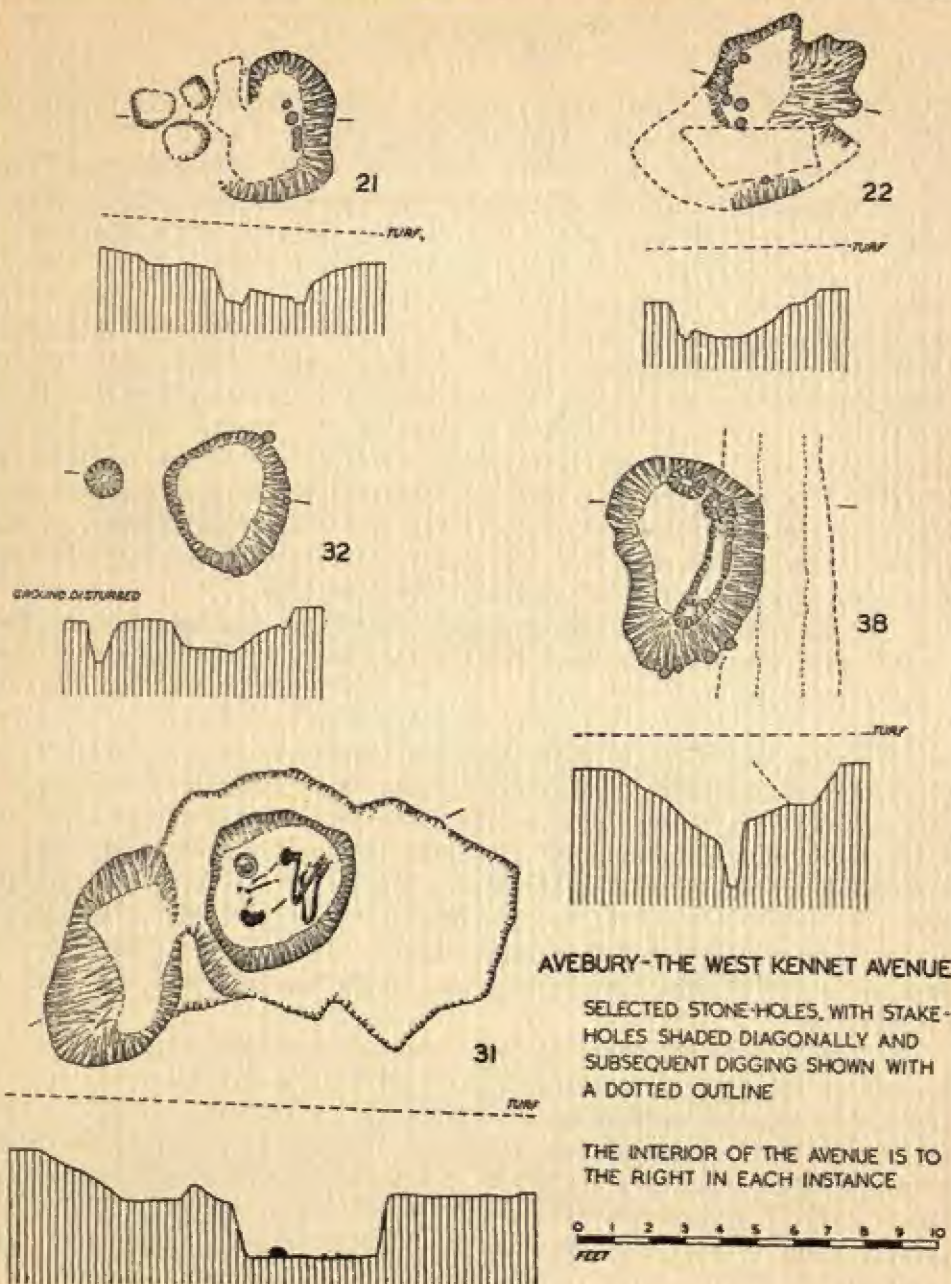


FIG. 2

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obtained, and this hope was fulfilled beyond expectation, for such evidence proved to be abundant and consistent.

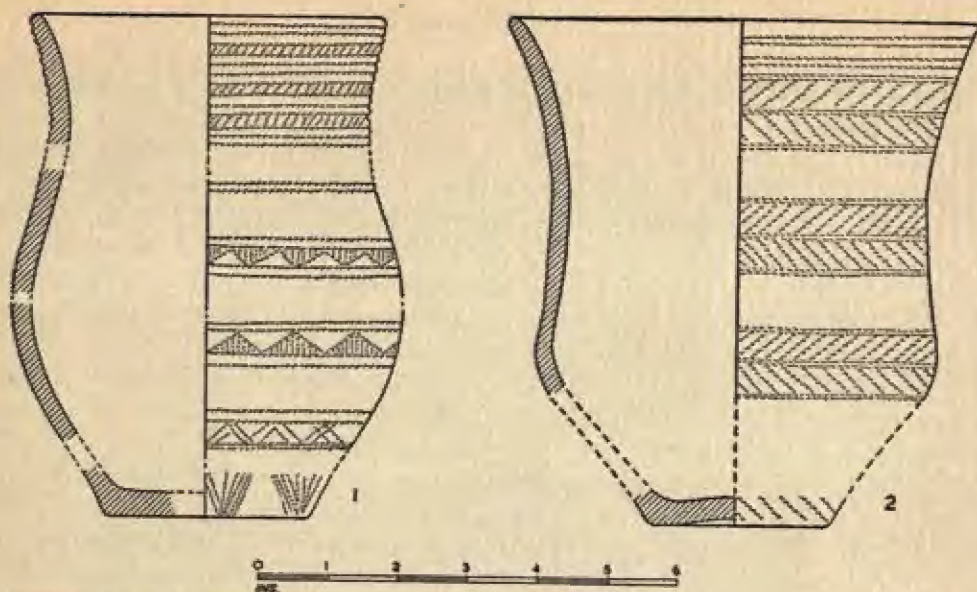
The first clue to the culture and date of the construction of the avenue was afforded by the fact that a habitation-site was found around stones 11 to 20. Structurally, nothing was present but a number of hearths or fire-pits and two rubbish-pits, with no indication of huts or other structures. Over the whole area occurred numerous potsherds uniformly of Neolithic B types, and a very individual flint industry, characterized by the presence of 'petit tranchet derivatives' of all forms, and knives and scrapers with polished edges recalling that from the West Kennet long barrow. Fragments of two axes of the augite-granophyre of Graig Lwyd were found, and an arrowhead of Portland Chert. The most striking find of imported stone was however two fragments of Niedermendig lava, from the Andernach region of the Lower Rhine, which rock had previously been found in an Early Bronze Age context by Mrs Cunnington at 'The Sanctuary'.⁶

In the rubbish-pits were found numerous animal bones, and sherds with cordons recalling certain members of the 'groove-ware' family (*e.g.*, Sutton Courtenay). In the upper part of pit 1 was found a fragment of the base of a beaker identical with that from the burial by stone 25, and it seems probable that the absence of beaker elsewhere in the habitation-site may be a cultural rather than a strictly chronological distinction. There can, we think, be little doubt that the habitation-site antedated the construction of the avenue across it, but the difference in time need not have been more than a matter of a year or so. In the Avebury region it is almost impossible to regard the Neolithic B and Beaker cultures as other than broadly contemporary, but the two groups of people may well have lived side by side without cultural interchange.

More precise evidence of date however was found in the form of burials at the foot of stones. Four such burials were found, against stones 18, 25, and 39, and beside stonehole 31 (FIG. 8). With the first two, beakers of type B were found (FIG. 3). The burial by stone 39 had no grave-goods, but that by stonehole 31 was accompanied by a remarkable bowl (FIG. 3) which is without precise parallel, although certain handled vessels from Dorset and the Isle of Wight seem to offer the best analogues.⁷

⁶ *Wilts. Arch. Mag.*, XLV, 332.

⁷ *cf. Proc. Prehist. Soc.*, 1935, 147.



AVEBURY-THE WEST KENNET AVENUE. Beakers from burials at the foot of stones.

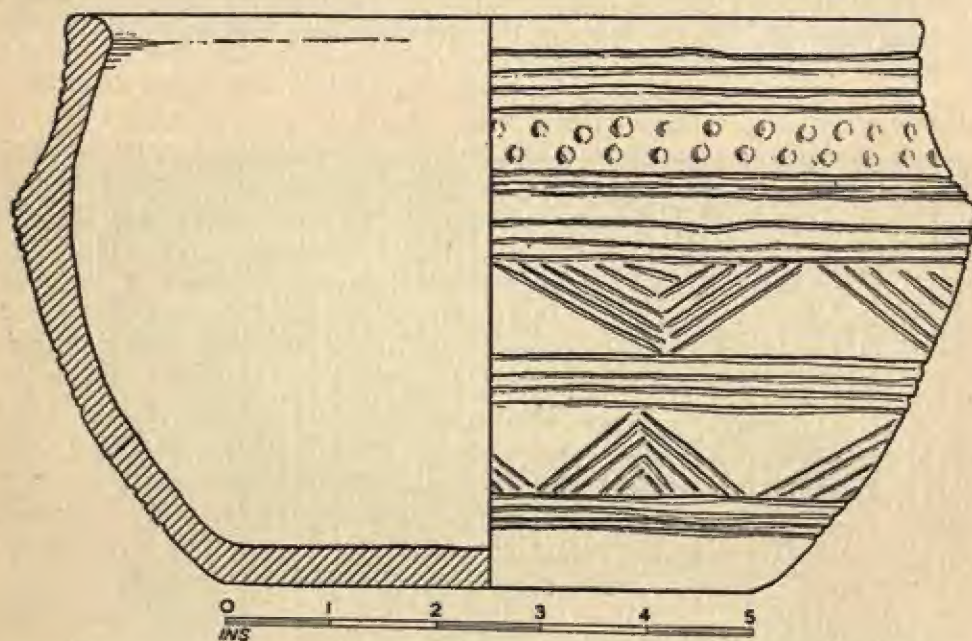


FIG. 3. ABOVE, BEAKERS FROM BURIALS BY STONES 25 (1) and 18 (2); BELOW, BOWL FROM BURIAL BY STONEHOLE 32

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It is a noteworthy fact that all four burials were placed on the northeast of their particular stones, that is to say, while the burials beside stones 25 and 39, and stonehole 31, were on the inner side as regards the avenue, that beside stone 18 was on the outer side. The graves beside numbers 18, 31, and 39 were separated by a short distance from the stoneholes themselves, and although strong presumptive evidence would exist for their contemporaneity with the construction of the avenue, it would have been possible, however improbable, for these burials to have taken place after, or even before, the erection of the stones. Not so the burial by stone 25, however, since in this case the grave actually formed part of the stonehole itself, and there is adequate evidence that the burial had taken place after the erection of the stone, but while it was artificially supported in its position and before the filling of the stonehole together with the packing stones had been forced into position, a proceeding which, incidentally, had been responsible for some degree of damage, through crushing, to the skull.

This association of beaker burials with stones of the avenue at Avebury is in accordance with the evidence previously recorded from the Longstones near Beckhampton⁸ and at 'The Sanctuary',⁹ where in each case a burial with a B beaker was found against a stone.

In addition to these burials, ritual deposits of flint flakes and other implements, and animal bones, were found in several stoneholes—a practice which has parallels in Brittany.¹⁰ The most important object found in such a deposit was a sherd of Early Bronze Age 'groove-ware', of the type to which the Woodhenge pottery belongs (FIG. 4). This occurred in association with animal bones and flint flakes in stonehole 45. Scraps of beaker were found in two stoneholes, nos. 9 and 52, while in stonehole 67 was found the upper part of a small bowl of burnished reddish-brown ware, with an everted lip and shoulder in an almost Iron Age style. We can suggest no significant parallel to this remarkable vessel. The accompanying table (page 427) shows the incidence of finds associated with the stones. Apart from those already described, an axe of foreign stone from stonehole 13 and the arrowhead fragment of olivine dolerite from stonehole 66 should be noted.

This evidence of date from the avenue is in accordance with that

⁸ *Wilts. Arch. Mag.*, xxxviii, 5.

⁹ *Wilts. Arch. Mag.*, xlv, 313.

¹⁰ du Chatellier, *Les Epoques Préhistoriques dans le Finistère* 26.

PLATE I



FIG. 5. STAKEHOLES AGAINST REAR OF STONEHOLE 22



FIG. 6. AS FIG. 5, BUT WITH ANTI-FRICTION STAKES RESTORED. (See p. 419)

PLATE II

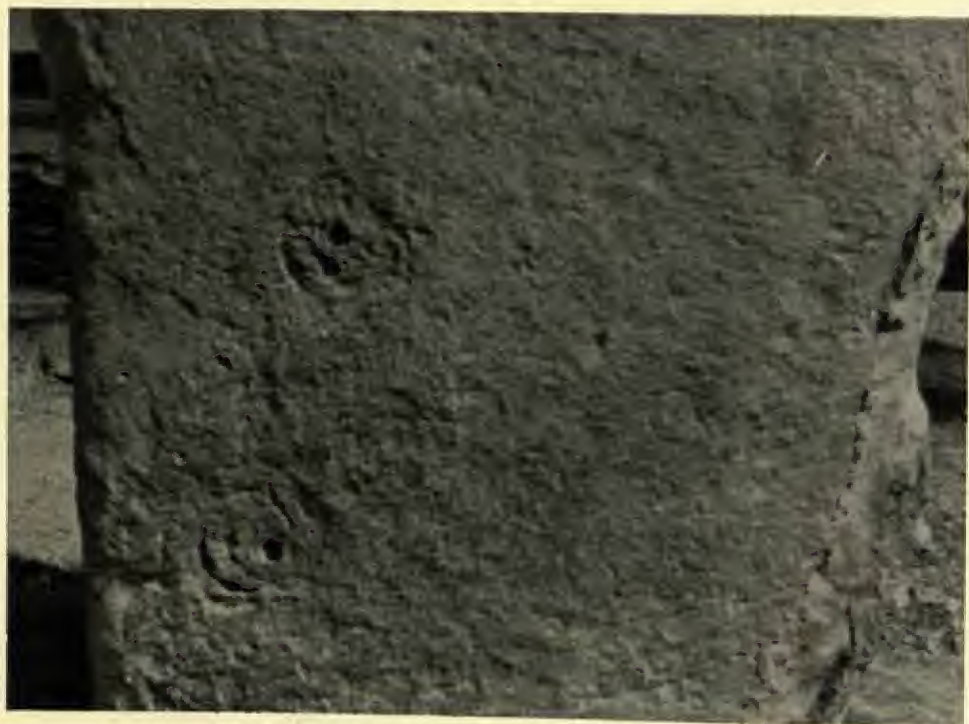


FIG. 7. INCISED ORNAMENT ON BACK OF STONE 25. (*See* p. 436)

PLATE III



FIG. 8. BURIAL BY STONEHOLE 31. (See p. 421)

PLATE IV



FIG. 9. STONE 18, REPRESENTATIVE OF TYPE B. (See p. 420)



FIG. 10. STONE 45, REPRESENTATIVE OF TYPE A, LYING AS BURIED BESIDE ITS STONEHOLE PRIOR TO EXCAVATION. (See p. 420)

PLATE V



FIG. 11. SOUTHERN PART OF EXCAVATED AVENUE AFTER RE-ERECTION OF STONES. (See p. 418)

PLATE VI



FIG. 12. DRAWING BY WILLIAM STUCKEY SHOWING DESTRUCTION OF SARSENS AT AVEBURY BY THE FIRE-AND-WATER PROCESS. [See p. 419]
 (Bodleian Library, no. Gough Maps 231)

PLATE VII



FIG. 13. NATIVES OF FRENCH GUINEA DESTROYING ROCKS BY THE FIRE-AND-WATER PROCESS DURING ROAD-CONSTRUCTION. (See p. 426)
Ph. Enzo de Chérelat, 1932

THE RECENT EXCAVATIONS AT AVEBURY

from the Circle itself, where the fragment of Neolithic B ware found by Mr Gray beneath the vallum,¹¹ and the 'petit tranchet derivative' found similarly on the surface in Sir Henry Meux' trench,¹² point to a date in the Early Bronze Age. During the excavations of 1935, a most interesting link between the building of the avenue and the digging of the great ditch was provided by the occurrence of packing-blocks of Lower Chalk in stonehole 57. As has been said, the Avebury monument stands on Middle Chalk, but the depth to which the ditch was dug

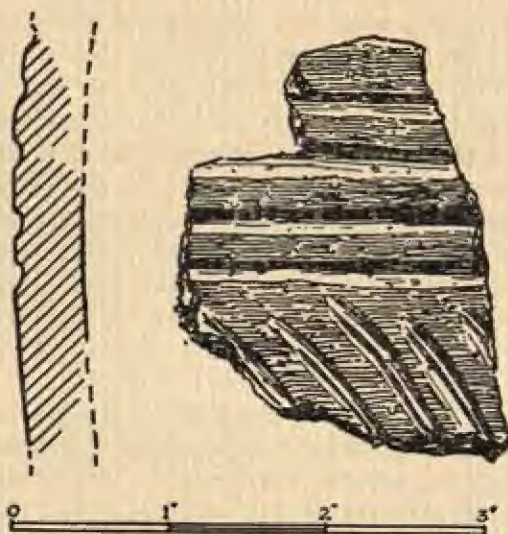


FIG. 4. SHERD OF EARLY BRONZE AGE 'GROOVE-WARE'
FROM STONEHOLE 45

makes it geologically probable that Lower Chalk must have been reached at certain points. It is consequently a reasonable presumption that it was from this material dug from the lower levels of the great ditch that the packing material in stonehole 57 was obtained. Assuming that the stones of the Circles must have been brought into position before the barrier of bank and ditch was made, and since we now see that in all probability the avenue was being constructed at the same time as this ditch was being dug, an interesting sequence of construction is provided.

¹¹ *Archaeologia*, LXXXIV, 137 and 140.

¹² *Wilts. Arch. Mag.*, XLVII, 288-9.

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Quite unexpected light was thrown on the state of the avenue in later prehistoric periods by the presence in the vicinity of stones 1 to 8 of a curious flint industry, almost certainly of the Early Iron Age, and contrasting very strongly both in workmanship and patination with the Late Neolithic series from the habitation-site mentioned above. Of these stones six were still in existence, although all lay prone on the ground, and it was found on excavating the stoneholes that the upper layers of several of them contained the typical debris of flint working, which was also abundant in the immediate neighbourhood. On the other hand, such debris was not discovered under any of the stones themselves when these were raised during the course of re-erection, thus proving that the stones had fallen prior to Early Iron Age times. It is to be presumed that the hollows of the stoneholes, which at that period had not been silted up or ploughed level with the surrounding surface, formed convenient rubbish-pits for flint-knappers, and were consequently so used. Indeed, in one instance, that of no. 1, where the stone, which had an attenuated base and a disproportionately heavy top, had fallen over its own stonehole, the flint-knapper had actually dug a shallow pit at the foot of the stone corresponding to the usual position at which a stonehole was found—indeed, it strongly resembled one—and this he filled with his discarded flakes.

As the avenue proceeded up the slight hill towards Avebury, it was found that its course was crossed transversely by field boundaries that survived as 'negative lynchets', and which had obviously formed part of the extensive field-systems of the Early Iron Age and Roman periods that cover the slopes of the downs in the neighbourhood. We see therefore that, unlike Stonehenge, Avebury's significance and sanctity had been forgotten by the Early Iron Age. In fact the contemporaries of the Druids, so far from watching stately processions of mistletoe-bedizened, white-robed priests winding along the avenue, were ploughing cornfields across its line and chipping flints in the lee of its unconsidered fallen stones.

We have added an illustration to show the modern practice of destroying rock-surfaces by fire and water. This method is still in use in French Guinea. The photograph reproduced here (FIG. 13) was taken by Mrs Enzo de Chételat in November 1932, near Pita on the Fouta-Djallon plateau. It depicts the construction of a road by Foulah workmen, under the direction of the French 'Commandant-de-Cercle'. The rocks are diabase covered by laterite. EDITOR.

TABLE OF INCIDENCE OF FINDS

Stone-hole No.	Associated burials		Pottery	Flint Flakes	Flint Implmts.	Foreign Stone	Bones (animal)	Bones (human)	Miscellaneous		
	Burial	Grave-goods									
9	On outer side of stone in separate grave	Beaker	2 Beaker sherds			Butt of axe					
13			Featureless scraps								
16											
18											
19			Sherds ? Neo. B.							77 (3 serrated) 132	Hammerstone, scraper
21											
25	Beaker										
31		Bowl									
39	None										
45	On inner side of stone in separate grave		Groove-ware (EBA)	8		Lower jaw pig, metapodial & horn core of ox. Rib fragments					
52			2 scraps Beaker	18							
53											
57											
59										3	Scraper
62											
65	5										
66	2	Triangular arrow-head (burnt)			Femur of ox and other fragments						
67	Burnished ware										

Eastern Influence on Carvings at St. Andrews and Nigg, Scotland*

by CECIL MOWBRAY

AMONGST the early Christian monuments of the British Isles the Scottish† cross-slabs form a well defined group. They are related to the Irish and Manx crosses of the 7th and 8th centuries and show occasionally some connexion with Northumbrian art. But, out of motives borrowed from these different sources, there was evolved in Scotland a type of monument peculiar to that country. The erect slab was constantly preferred to the free-standing cross, and, although a flat style of carving, similar to the Irish style, was used, and many of the Irish motives—spirals, interlacing and occasionally animal-interlacing—were adopted, the spirited rendering of hunting scenes and fantastic animals, and the use of the cross, framed in the slab as in a page of manuscript, gave to these monuments a definite originality.

Amongst this, on the whole, coherent group, two monuments, those of St. Andrews and Nigg, stand out; partly by the choice of subjects represented on them, and partly by their unusual style—the use of a rather flamboyant type of ‘ronde bosse’ carving instead of flat relief. They both reveal a strong eastern influence blended in a most unexpected way with native ornament.

The St. Andrews stone (PLATE I) was considered by Romilly Allen to be an altar tomb.¹ It is made of sandstone and parts of it are lost. Originally there would have been four narrow upright slabs, one for each corner, grooved vertically to receive four thinner slabs which formed the sides of the box. Of these slabs there now remain one long side panel, one end panel, two fragments of the other long panel and two of the corner posts. The complete tomb would have measured

* I am greatly indebted to Mlle. Henry for the help she has given me in writing this paper.

† Throughout this paper the word Scottish is used with its modern meaning and not in the early medieval sense.

¹ Romilly Allen, *Early Christian Monuments of Scotland*, 351.

CARVINGS AT ST. ANDREWS AND NIGG, SCOTLAND

5 feet 9 inches long, by 2 feet 11 inches wide, by 2 feet 4 inches high. The long panel is divided into three compartments, the centre one containing a figure subject and the two others decorative designs of animal-interlacing. On the end panel there is a cross, covered with interlacing and with a large boss in the centre ; between the arms of the cross are four recessed panels, in two of which are small figures and in the other two ornamented bosses. The corner posts and the fragments of the other long panel are carved with interlacing and on one of the fragments there remains a trace of zoomorphic design.

Representations of David form the chief part of the figure-scene of the long side panel. From an early period David, as a prefiguration of Christ, was portrayed in Christian art. In the catacomb paintings he is shown with a sling ; on the sarcophagi with Goliath. As early as the 4th century a series of representations giving scenes from his life became popular.² An example is found on the carved wooden doors of S. Ambrogio at Milan, but there were few developments in the West and it was in Byzantine art of the 6th century that the David cycle attained its greatest popularity.³ The two most extensive series are found on the frescoes of Bawit in Egypt and on a treasure of silver plate from Cyprus, both of the 6th century. On the silver dishes from Cyprus the influence of classical models is obvious. The figure-art of east Christian silverwork is closely related to that of illuminated manuscripts and to carvings in ivory,⁴ and any portable works of art would be a possible source for the introduction of this motive into Scotland.

The large figure on the right of the panel shows David and the lion (PLATE II, D). That it is David and not Samson is made clear by the figure of the sheep in the background.⁵ 'And David said unto Saul, thy servant kept his father's sheep, and there came a lion and a bear, and took a lamb out of the flock : and I went out after him, and delivered it out of his mouth : and when he arose against me, I caught him by his beard, and smote him, and slew him. Thy servant slew both the lion and the bear'.⁶ There are two unusual points in the St. Andrews representation. One is the absence of the bear of the bible narrative, which completes the scene in the usual David cycle ;

² O. M. Dalton, *Byzantine Art and Archaeology*, 576.

³ Cabrol et Leclerc, *Dictionnaire d'Archéologie Chrétienne et de Liturgie*, iv, 302.

⁴ O. M. Dalton, *op. cit.*, 576.

⁵ J. Anderson, *Early Christian Monuments of Scotland*, I.

⁶ I. Samuel, xvii, 34-6.

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the other is that David is shown in the traditional attitude of the Chaldean and Assyrian Gilgamesh (PLATE II, c) instead of in the Mithraic attitude in which he is generally portrayed. Both attitudes are eastern in origin, but the iconography of Mithra had been transmitted by Rome throughout the West at an early period, whereas there are few examples of the Gilgamesh attitude found in Europe. One example is on the Gundestrup cauldron⁷ (PLATE II, E); another is on a Byzantine ivory casket (11th-12th cent.) from the cathedral at Lyon,⁸ showing a gladiatorial combat. It is unusual to find it used in Christian symbolism, but there are four examples on the Scottish slabs (FIG. 1). The St. Andrews representation of David gives the impression of being an eastern version of a classical figure. It is evidently related to the



FIG. 1. DAVID AND THE LION ON SCOTTISH CROSS-SLABS

classical figures of the 4th century sarcophagi of Italy (PLATE II, A) and southern France which belong to the tradition of the Hellenistic bas-reliefs, current in the Empire during the Antonine period,⁹ but the elaborate folds and pleats of the costume, with the ends forming a symmetrical scalloped edge, seem nearer to the formalized drapery of Byzantine art. The sword, with the interlacing pattern of its sheath, the shoes, instead of sandals, are both unusual features to find on a classical figure. The lion, which is the small lion of Assyrian art, is a

⁷ But here we are dealing with an object which may have been made in eastern Europe. It is of doubtful date and shows traces of eastern influence in the figures of elephants and the ornamental use of vegetation. See Hubert, *Les Celtes*, I, pp. 101, 152.

⁸ L. Bréhier, *L'Art Byzantin*, 47.

⁹ L. Bréhier, *Le Sarcophage des Carmes Dechaux. Études Archéologiques* (Clermont-Ferrand, 1910), and *L'Art Chrétien Primitif*, p. 14.

CARVINGS AT ST. ANDREWS AND NIGG, SCOTLAND

real lion, not the strange dog-like creature which generally appears in Irish and Scottish art, and, in a country where lions are unknown, must have been copied from an eastern source.

From this representation of David and the lion the meaning of the two other figures on the panel follows naturally (although here we depart from the usual David cycle): David the hunter, on horseback; and David, as shepherd or warrior, on foot with shield and spear.

The horseman is defending himself with a sword from the attack of a lion (PLATE IV, A). In composition this scene bears a striking resemblance to representations of lion hunts in Sassanian art (PLATE IV, B),¹⁰



FIG. 2. SASSANIAN DISH, VYATSKY, SOUTH RUSSIA
(cf. PLATE IV, B)

which go back in their origin to the lion hunt of Assyria.¹¹ The idea of a Sassanian prototype is strengthened by the fact that the horseman has a hawk on his arm, which can be paralleled by engravings on Sassanian silver dishes (FIG. 2). There do not seem to be examples in any other country of David shown on horseback. It seems quite probable that in Scotland, where hunting scenes with horsemen were popular, the sculptor should have represented David in this way, and have taken for a model a composition which had originally no religious

¹⁰ *Catalogue of Eastern Silver and Gold Vessels from the Oriental Provinces of the Russian Empire* (St. Petersburg, 1909); lion-hunt, nos. 54, 55; hunter with hawk, no. 157.

¹¹ See the bas-relief in the British Museum of a lion hunt in the reign of Assur-Nasir-pal (880 B.C.).

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significance, but which, because of the lion, could readily be associated with David.¹²

The small figure on foot is dressed in a Greek tunic and carries a spear and a small shield. Although the motive of David as a shepherd is not included in the usual David cycle it does occur fairly often in Byzantine psalters, but there treated as a sort of Orpheus scene with David playing on a harp surrounded by a group of animals.¹³

There is a curious scene on the left of the panel, where a deer with a monkey on its back, a monkey in a squatting position and a hound chasing a beast of prey, are all entwined in the branches of a tree. The use of vegetation, extremely rare on the Scottish slabs, again leads us to eastern art. There are examples of it on Assyrian and Persian bas-reliefs.¹⁴ A close analogy is found on a Coptic carved wooden chest of A.D. 600 in the Cairo Museum, where the branches of a vine are twined round the bodies of a lion and a hare. Representations of monkeys are found on Byzantine floor mosaics and the figure of a monkey riding on a deer is paralleled by a monkey on a Sassanian dish from South Russia.¹⁵

The gryphon devouring the quadruped is derived from an eastern motive which became so common in Roman and Byzantine art that it has no regional significance.

A curious point about the whole figure-scene of this central panel is the repetition of the forms. When the same species of animal is represented twice or even three times, it is portrayed always in the same attitude and, although it may vary in size, it is otherwise almost identical. There are three deer, two beasts of prey, two squatting monkeys; even the two lions are almost the same, each on its hind legs with one forepaw raised and one hanging (a favourite attitude for Byzantine lions), each with its tail curled between its legs. It almost seems as though the sculptor had had a differently shaped panel to fill than the model from which he was copying, and therefore, instead of inventing new forms, repeated the old ones.

¹² There may also be some connexion with the Coptic mounted saint.

¹³ MSS. Grec 139, f. 16, Bibliothèque Nationale, and Studium Psalter, Add. MS. 19352, British Museum.

¹⁴ See the bas-reliefs in the British Museum of the building of Sennacherib's Palace, Nineveh. A Persian example is on the Tak-i-Bostan rock sculptures, where elephants are entwined in vegetation.

¹⁵ *Catalogue of Eastern Silver and Gold Vessels from the Oriental Provinces of the Russian Empire* (St. Petersburg, 1909), no. 161.

PLATE I



THE SARCOPHAGUS OF ST. ANDREWS
By courtesy of the National Museum of Antiquities, Scotland

PLATE II



A. DETAIL OF SARCOPHAGUS
Lateran Museum, Rome



B. PAGE FROM BOOK OF MACREGOL
Pk. L. Michéll



C. GILGAMESH (8th cent. B.C.)
The Louvre, Paris



D. DETAIL OF SARCOPHAGUS



E. DETAIL, GUNDESTRUP
CAULDRON
St. Germain Museum

PLATE III



A, B. PANELS, SARCOPHAGUS OF ST. ANDREWS



C. DETAIL, LINDISFARNE GOSPELS
By courtesy of the British Museum



D. PANEL FROM CROSS-SHAFT, ROTHBURY
Ph. F. Clayton

PLATE IV



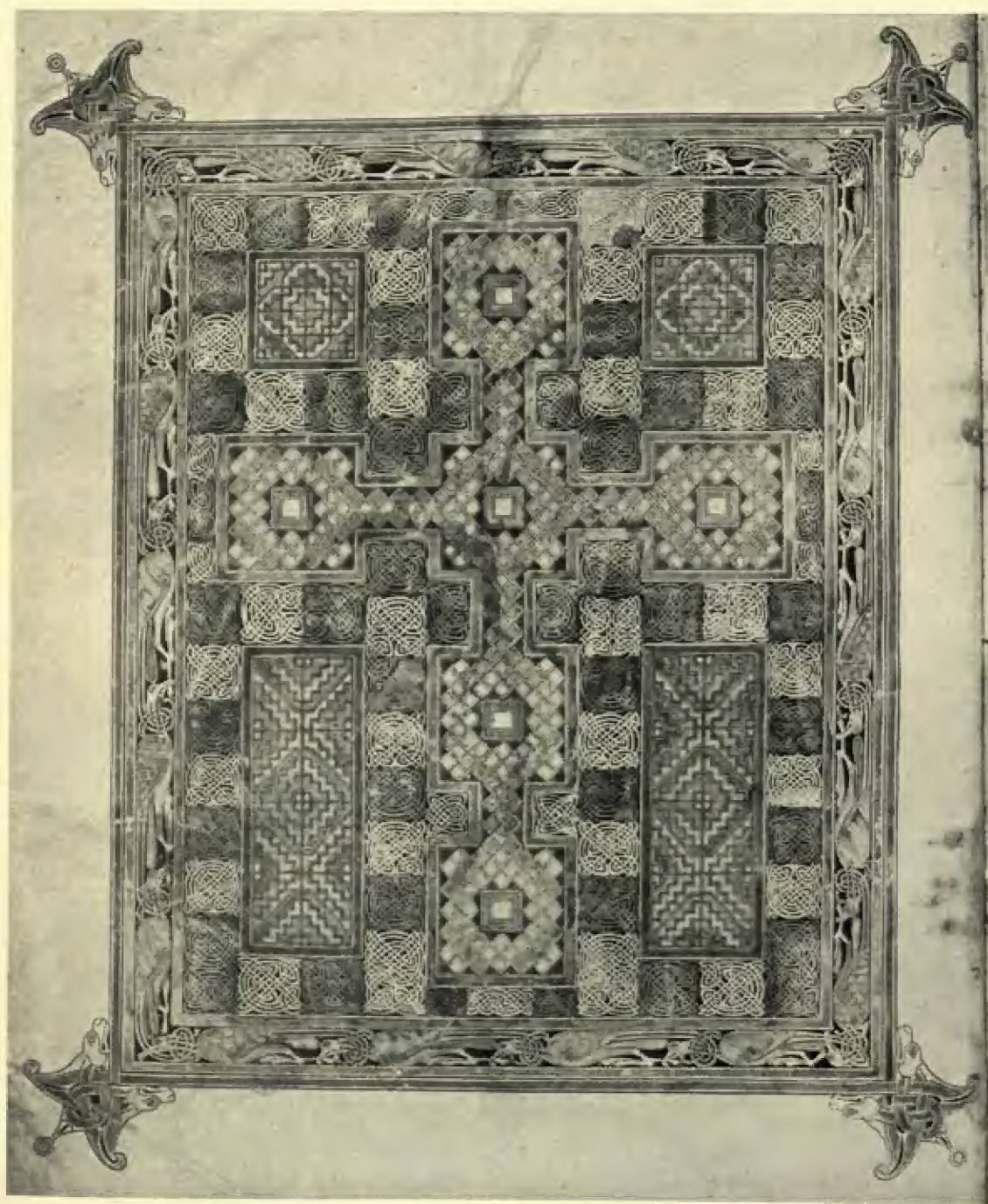
A. DETAIL, SARCOPHAGUS OF ST. ANDREWS



B. SASSANIAN SILVER DISH (A.D. 438)

By courtesy of the British Museum

PLATE V



PAGE FROM THE LINDISFARNE GOSPELS
By courtesy of the British Museum

PLATE VI



FRONT OF CROSS-SLAB, NIGG
From Romilly Allen, 'Early Christian Monuments of Scotland'

PLATE VII



BACK OF CROSS-SLAB, NIGG

From Romilly Allen, 'Early Christian Monuments of Scotland'

PLATE VIII



CROSS-SLAB, ABERLEMNO, ANGUS
From Romilly Allen, 'Early Christian Monuments of Scotland'

CARVINGS AT ST. ANDREWS AND NIGG, SCOTLAND

For the side panels of this slab the sculptor has taken two of the animals from the figure-scene and formed from them a purely Celtic design of interlacing animals (PLATE III, A and B, and FIG. 3) while still keeping the 'ronde bosse' technique of the centre panel. The style of animal-interlacing is close to that of the Book of Lindisfarne, where the form of the animal is still complete and fairly legible (PLATE III, C).

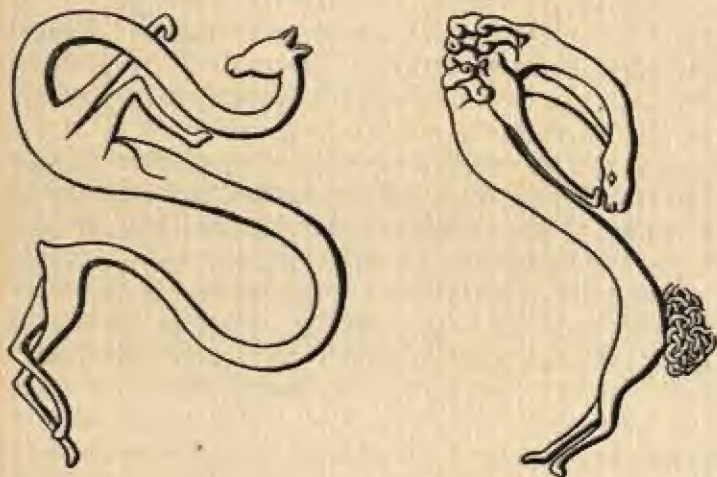


FIG. 3. ANIMAL FORMS, SARCOPHAGUS OF ST. ANDREWS
(cf. PLATE III, A, B)



FIG. 4. FIGURE-SCENE,
NIGG. (cf. PLATE VII)

Another parallel which is probably nearly contemporary with St. Andrews is found on a cross-shaft at Rothbury, Northumberland, where lion-like animals are disposed in a very similar pattern (PLATE III, D). It is the only example of this type of animal-interlacing in Northumbria.* The lion is nearer to the 'gripping beast' of Anglian

* I wish to thank Dr Kitzinger for calling my attention to this carving, which in his opinion can be dated at about A.D. 800. For a description and illustrations of the cross see Collingwood 'Northumbrian Crosses of the pre-Norman Age', 76 and *Archaeologia Aeliana* 1925, ser. 4, 1, 159.

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art and there is probably no real connexion with St. Andrews, yet the carvings are close enough to show that they are due to a similar artistic impulse.

The carving of the remaining slabs of the sarcophagus is purely decorative, and, with the exception of the little figures of monkeys between the arms of the cross, the forms used are either Northumbrian or Celtic. The square-angled cross gives another parallel with Lindisfarne (PLATE V). The interlacing and key patterns are common to many of the Scottish stones. The raised bosses are similar to those on the Nigg stone, the latter, however, being more elaborate.

There is a very evident connexion between the carvings of St. Andrews and of Nigg, but at Nigg the style and technique are already further removed from the eastern model. The purely decorative element is stressed at the expense of the figure-scenes, which retain little of the realism of the St. Andrews work.

The Nigg stone (PLATES VI, VII)¹⁶ is an upright cross-slab of grey sandstone with a pedimented top. It is 7 feet 3 inches high and 3 feet 5 inches wide, by 5 inches thick. Unfortunately it has been broken and part of it is missing. On the front of the slab a figure-scene occupies the triangular space at the top. Below this a cross, formed of panels of interlacing, animal-interlacing and key pattern, extends over the remainder of the side. Raised bosses, scroll work and interlaced serpents fill the spaces between the arms. On the back of the stone there is a long upright panel with a figure-scene, bordered by narrow panels of interlacing and key pattern. This side of the stone is very worn and it is difficult to distinguish the figures. The slab with pedimented top is common in Coptic art, it occurs fairly frequently in Scotland, and there is one example in Ireland, at Fahan Mura, Donegal.

The figure-scene on the front of the slab is taken from St. Jerome's life of St. Paul (PLATE VI). It shows the scene in the desert when St. Anthony visited St. Paul 'and as they talked they perceived that a crow had settled on the branch of a tree, and softly flying down, deposited a whole loaf before their wondering eyes. And when he had withdrawn, "Behold", said Paul, "God hath sent us our dinner, God the merciful, God the compassionate. It is now sixty years since I have had each day a half loaf of bread; but at thy coming Christ hath doubled His soldiers' rations"'.¹⁷ But here the scene is used as a symbol of the Sacrament;

¹⁶ Romilly Allen, 75.

¹⁷ Helen Waddell, *Desert Fathers*: 'St. Jerome's Life of St. Paul', 48.

CARVINGS AT ST. ANDREWS AND NIGG, SCOTLAND

the loaf is in the form of a wafer and the dish below resembles a patena,¹⁸ while the two saints, with books in their hands, kneel in adoration on either side. The story is followed faithfully. Above, outlining the panel, are two trees, no doubt representing the ancient palm whose wide-spreading branches roofed the natural courtyard where St. Paul lived. The two dog-like forms are the lions which, after the death of St. Paul, when St. Anthony was lamenting the lack of a spade with which to dig his grave, 'came coursing, their manes flying, from the inner desert'¹⁹ and dug a hole in the ground with their claws, large enough to hold the body.

On the rest of this side of the slab the carving follows the style of the St. Andrews stone and of the Book of Lindisfarne. The cross is very close in shape to one used in the Lindisfarne Gospels (PLATE V) and, as Strzygowski has pointed out, it stands out in the front plane above a sunk background, an effect produced in colour on the manuscript.²⁰ The animal-interlacing and the use of a plain raised moulding to outline the panels and the cross are further points of resemblance. The raised bosses formed of interlaced serpents are similar to those of St. Andrews, but more elaborate. Strzygowski compares them to the pierced bosses on the stucco frieze at Dar-es-Suryani in Lower Egypt, which he believes to have been the work of Iranian workers in stucco for the Abbot Moses of Nisibis in the 10th century.²¹ The plain raised bosses of the lower panels resemble the Late Celtic repoussé work of Scotland.

On the back of this slab the large figure-scene (FIG. 4 and PLATE VII) is obviously derived, if not from the figure-scene of St. Andrews, at least from the same source. The carving however is flatter, the composition more disconnected, and there is a certain stiffness and lack of life about the forms. All the chief motives are there. At the top of the panel there is a different version of the motive of the gryphon devouring the quadruped; the gryphon has become a bird and the animal (which is now missing on the stone, but is recorded by an old drawing) is very much stylized. In the centre of the panel David is shown with the lion. Little remains of the figure of David except the

¹⁸ F. Henry, *La Sculpture Irlandaise* (1933) I, p. 133. Although this version of the scene occurs on several monuments in Ireland, the only example with a patena is on the Bantry stone, County Cork.

¹⁹ H. Waddell, *op. cit.* 51.

²⁰ See Strzygowski, *Origin of Christian Church Art*, 240.

²¹ Strzygowski, *op. cit.*, 240.

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left arm, with the drapery standing out stiffly in rigid folds. The lion is hardly recognizable, but the positions of the hind legs and back indicate the Gilgamesh attitude. The sheep is there, with elaborately curled fleece, and the identity of David is emphasized by the addition of the harp, another of his attributes. Above, there is David on foot with shield and spear and with a sword of Viking type. He is preceded, as at St. Andrews, by a deer and a hound. At the foot of the panel he is on horseback (almost indistinguishable on the stone, but recognizable on Petly's drawing). The hound and deer indicate the more usual type of Scottish hunting scene, rather than the eastern version of St. Andrews. Above the hunting scene there is a new figure: a man holding what appear to be cymbals. It is possibly David dancing before the ark.²² Two of the panels which form the border of this scene are filled with interlacing which is incised instead of being carved in relief; this is most unusual on a Scottish stone.²³

The figure-scenes on these two monuments appear, as we have seen, to be predominantly eastern in origin. It is interesting to note how far the scene of David and the Lion as portrayed on the St. Andrews stone is from the Irish conception of the same scene as illustrated in the Book of MacRegol (PLATE II, B). The composition, however, with its asymmetric arrangement of figures of varying sizes, and of motives bearing no obvious relation to one another, is typical of the figure-scenes on the cross-slabs of Scotland. It is perhaps due to the Celtic tradition of ornamental art, where a figure-scene, when adopted, is treated decoratively rather than as a narrative.

The decorative motives are native; if not Celtic in origin, then derived from that composite style which grew up on the border of Celtic and Northumbrian art.

This blending of native and foreign styles on the same monument shows that we are not dealing here with pure imitation of foreign models. In the same way that on the Bewcastle (see PLATE facing p. 385) and Ruthwell crosses there are interlacings, as well as animals copied from Mediterranean forms, so here native animal-interlacing is seen side by side with eastern figure-carving.

The technique, both of the figure-scenes and of the ornamental panels, is sculpture in the round, very different from the flat style of carving usually employed in Scotland. This leads us to the conclusion

²² II Samuel, vi, 14.

²³ Romilly Allen, p. 82. Two examples of incised interlacing occur in England. One is at Ilkley, in Yorkshire; the other at Irton, in Cumberland.

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that the models from which so much was borrowed—both technique and figure-scenes—must have been in sculpture, probably either ivory, metalwork or wood.

The dating of these stones is a difficult problem. The chronology of the whole series of the Scottish cross-slabs is still undecided, but they can be roughly divided into two main groups.²⁴

(1) A western group, which in its origin is related to the earliest group of Irish carvings and to the pre-Danish Manx slabs. Examples of this group are found as far north as Shetland and a few are in the Pictish territory of eastern Scotland. They are characterized by a cross on one if not both faces of the slab ; little cowed figures of monks, often carrying books and croziers ; representations of St. Paul and St. Anthony seated on chairs on either side of the cross ; a very flat style of carving, with broad surfaces and generally rather thick figures ; and simple and broad interlacing.

(2) A main eastern group, extending over the whole territory of Pictish Scotland. The style has a certain similarity to that of manuscript pages with the cross framed in a border of ornament. Monuments of this group are characterized by extraordinarily intricate thread-interlacing ; numbers of fantastic animals ; elaborate hunting and battle scenes ; some animal-interlacing ; and a flat, but more animated style of carving than that of the western group.

On the eastern group are frequently found the series of conventional motives known as 'Pictish Symbols' which, as well as occurring on these Christian monuments, are also found, unaccompanied by any other motives, on a large group of rude stone pillars all over the area occupied by the Picts, but in the largest numbers in Aberdeenshire. The question of their origin, meaning and dating is a vexed one.

There are no inscriptions to date any of the Scottish monuments, so that we have to rely on collating the different motives with other dated monuments and objects. The early group of Irish carvings, which is connected with the western group in Scotland, belongs to the late 7th or early 8th century.²⁵ Several cross-slabs of the main eastern group, for example Aberlemno no. 2,²⁶ have close connexion with the animal-interlacing of the Lindisfarne Gospels, and others have some

²⁴ For a more detailed account of the chronology and classification of the Scottish slabs, see an article to appear shortly in the *Proceedings of the Society of Antiquaries of Scotland*.

²⁵ F. Henry, *La Sculpture Irlandaise*, vol. 1, 164.

²⁶ Romilly Allen, 209.

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features in common with a late group of Irish crosses of the 8th century, and with the Bealin cross, which belongs to the early part of the 9th century.²⁷

The native decorative elements of the St. Andrews and Nigg stones provide, as we have seen, a close analogy with the Book of Lindisfarne. They are also closely connected with the style of the main eastern group, and the few slabs which are influenced by St. Andrews or Nigg belong to this group.

The slab which derives most from St. Andrews and Nigg is at Aberlemno (PLATE VIII).²⁸ It is closely connected with both stones, in style, decoration and iconography. It has similar raised bosses, sculpture in the round, the same type of animal-interlacing and key-pattern, and, at the base of the cross, a panel of interlacing which is incised and not carved in relief, similar to the panels on the Nigg stone. The two figures (FIG. 5) on either side of the cross are clearly derived from the figures of St. Paul and St. Anthony on the Nigg stone; they have books in their hands and the same curiously long-shaped heads bowed in prayer. On the other side of the slab the hunting scene is derived from another Scottish stone, that of Hilton of Cadboll.²⁹ Below this scene, at the base of the stone, are two panels, one of which contains a rudely carved and badly weathered representation of David and the lion (FIG. 6). He is unmistakably in the Gilgamesh attitude, and the sheep and harp are shown above. In the other panel there is the figure of a hippocentaur, carrying under its arm the branch usually shown on classical examples³⁰; it is perhaps the hippocentaur met by St. Anthony on his journey across the desert to St. Paul.³¹

The eastern prototypes of St. Andrews and Nigg are mostly Persian and Coptic and belong to a period between the 5th and 7th centuries. Allowing for a period of time to elapse before they reached Scotland this would fit in with the dating of the native elements at somewhere in the 8th century. This accords with the historical facts as far as they are known. Nothing can be known for certain about the original Celtic foundation of St. Andrews. The earliest form of the legend about its dedication is found in the Chronicles of the Picts and Scots. It tells

²⁷ F. Henry, 'L'Inscription de Bealin', *Revue Archéologique*, 1930.

²⁸ Romilly Allen, 214-61.

²⁹ Ibid.

³⁰ Baldwin Brown, *Arts in Early England*, III, 85. Hippocentaurs occur on Anglo-Saxon sceattas which may be so late as to show the influence of the Carolingian renaissance.

³¹ H. Waddell, *Desert Fathers*: 'St. Jerome's Life of St. Paul', 45.

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how Hungus, King of the Picts, was promised, in a vision, victory over the Britons if he would dedicate a tenth part of his kingdom to God and to St. Andrew. After his victory, he met a monk called Regulus, a pilgrim from Constantinople, who had arrived in Scotland with the relics of St. Andrew. King Hungus gave the city where he met Regulus 'to God and to St. Andrew to be head and mother of all the churches in the kingdom of the Picts'.³² Though this legend is obviously borrowed from the story of the conversion of Constantine, the mention of relics being brought from Constantinople is interesting. Perhaps pilgrims did indeed come from there and may have brought with them other objects as well as relics.



FIG. 5. FIGURES, NIGG AND ABERLEMNO
(cf. PLATES VI and VIII)



FIG. 6. DAVID AND THE LION,
ABERLEMNO
(cf. PLATE VIII)

There were two Pictish kings called Hungus. One reigned from 731 to 761; the other from 822 to 834. Skene took the view that the monastery was dedicated to St. Andrew in the reign of the first Hungus³³ and it is generally accepted that he is right. It seems probable that an altar tomb would belong to the period of the dedication. This would confirm the dating of the St. Andrews stone at about the middle of the 8th century. Nigg would be a little later.

Nigg is on the east coast of Scotland, as is St. Andrews, but it is nearly 150 miles further north. Whether there was direct contact between these two places, or whether the contact came by way of Iona

³² Skene, *Celtic Scotland*, 297.

³³ Skene, *op. cit.*, 299.

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it is impossible to say.³⁴ The Danes first destroyed Iona in the year 802 and after that it suffered periodic raids. It came to be second in importance to the monastery of Kells and to have less connexion with Scotland. Yet it remained a place of veneration and the Scottish kings were buried there for many years to come.

Owing to the recurring destruction of the Viking raids, we have very little knowledge of the type of monument that existed in Iona. There remain a few examples of an interesting group of carvings in Iona and on the neighbouring islands³⁵ of which a good example is at Kildalton, Islay. They are free-standing crosses, of the wheel-cross type connected with the Irish group, instead of slabs. Their iconography, which includes representations of the Virgin and Child (a scene which never occurs in the Scottish slabs) shows a strong Northumbrian influence; while their raised bosses and technique of sculpture in the round is close to the style of Nigg. It seems at least a possibility that they are survivals of an 8th century style in Iona, whose other monuments have perished. What part Iona had in the diffusion of the 'ronde bosse' style we have no means of knowing.

So, if we examine them closely, the carvings of St. Andrews and Nigg would appear to derive their unusual appearance from an imitation, both in style and subject, of some eastern objects. That the main group of Scottish slabs is not affected would seem to indicate that the connexion with the East was an accidental one. And these two monuments, while emphasizing the diversity of influences at work in Scotland at that time, do not have much bearing on the general development of Scottish art.

³⁴ The road from Iona to Nigg would be an easy one, following the present route of the Caledonian canal.

³⁵ Romilly Allen, 381, 384, 385, 389, 391.

Tepe Gawra

by M. E. L. MALLOWAN

EXCAVATIONS AT TEPE GAWRA. Volume I, Levels I-VIII. By E. A. Speiser, with a chapter by Dorothy Cross and occasional notes by Paul Beidler and Charles Bache. Published for the American Schools of Oriental Research by the University of Pennsylvania Press, Philadelphia, 1935. pp. 220 and 86 plates. 27s.

GAWRA is a mound lying approximately 15 miles NNE of Mosul, and a mile or two less from Nineveh. Eighty years ago Layard with his usual flair for a promising site ran a few trenches into the side of the mound, but fortunately he then had better fish to fry and contented himself with recording that 'the place is worthy of a more complete examination'. In 1927 Dr. Speiser re-examined the site with the result that a fully equipped expedition under the auspices of the University Museum of Pennsylvania, Dropsie College, and the American Schools of Oriental Research, was able to set to work in 1931. It is a happy issue that a well trained scientific expedition with 80 years of tradition and experience of archaeological method behind it has by the fruits of its labours justified the prescience of Layard. And to Layard all honour, in that while realizing the potentialities of the mound he also saw that the time was not yet ripe for its excavation.

The great accumulation that is Gawra stood in the time of Sargon of Assyria nearly 25 metres above the level of the plain. Today thanks to the labours of successive American Expeditions the mound stands for the most part at less than half that height, and layer by layer we are having uncovered for us a series of cities which take us back from the last quarter of the second millennium B.C. to the beginnings of the Chalcolithic or even to the Neolithic period.

The importance of Gawra was due to the fact that it lay in a foothill region ultimately connected with a massive range of mountains extending to Ararat, and that while caravan traffic must have kept it in touch with Iran, its nearness to Nineveh and the Tigris assured it of contacts with the lowland culture of Syria and the land of the Two Rivers. And so Gawra is linked with outlying regions towards all points of the compass and has already provided us with a most important body of evidence for inter-relating civilizations often far distant from one another. Better

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than any other site Gawra can tell us what type of civilization obtained in Assyria during those palmy days towards the end of the fourth millennium when the peoples of Sumer were becoming the first metallurgists of the ancient world, were making strides in the art of writing, and were moving apace towards the formation of a body politic which was the token of a civilized world. In short, Gawra can tell us something about the time when the land of the Two Rivers was outgrowing the inarticulate era of myth, and was evolving towards the mature development that gave us Sumerian civilization and therein the foundations of Western culture.

Gawra with its long succession of occupation levels finally took the shape of a great cone eminently suitable for excavation owing to its compactness. Its present configuration has been determined by the frequency with which the cities that composed the mound have raised its height. On the zero contour at the base the NW by SE overall measurement was not less than 130 metres, but after a rise in height of 20 metres the overall measurement at the top on the same line was not more than 10 metres. That this constant contraction in the superficies of the mound was acutely felt by the ancient builders themselves is proved by the fact that some of the later builders, as in level 6, constructed terraces to gain space, thereby, as Dr Speiser points out, hastening the final diminution of the surface. Thus in spite of the fact that after level 6 successive buildings were superimposed as closely as possible one over the other, by the end of the second millennium B.C. the building area available at the top was so small, and the height above the level of the plain so great, that the site was no longer practical for habitation, and the occupation of the mound came to an end.

This volume is concerned with 8 strata numbered from the top downwards; but as stratum 8, the earliest level discussed, contains within itself three building levels, we are dealing with no less than ten different occupations which carry us back from approximately the 14th century B.C. to the Uruk period, or well back into the 5th millennium B.C.; in other words from the late Bronze Age of Mesopotamia well back into the Chalcolithic.

The buildings on Gawra suggest that in the early periods the mound itself was in the nature of an acropolis built over with temples and treasuries, to which the populace living at the foot of the mound could repair in times of stress. Indeed at many periods Gawra, depending as it probably did on its reputation for sanctity, presented an interesting ancient analogy to the Yezidi shrine of Sheikh 'Adi

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which lies within a few miles of it. To my mind another curious parallel between Gawra and the devil-worshipping centre of the Yezidis is the numerous traces on the ancient site of a snake cult; for a snake carved in stone may to this day be seen at the entrance to the Yezidi shrine.

The successive occupation levels are summarized as follows by Dr Speiser.

STRATA 1-3. 14th-17th centuries B.C. (said to be Hurrian).

The closest relations known to the author are with Tepe Billa, the detailed publication of which is much to be desired. Since the excavation of Gawra much evidence has come to light which shows that the painted pottery of the time is fairly wide-spread in Syria. We now know that material from Hammam, near Carcemish, must be contemporary, and that the ware in question, which has been extensively found at Chagar Bazar, occurs all over the Habur area of Syria.

STRATUM 4. 2250 B.C. Third dynasty of Ur. Correlated with Billa 4, A and B and Ashur E.

The dating evidence is somewhat scanty and the problem is not made easier by the presence of out-of-place pottery, some of which is admittedly earlier than third dynasty, while other specimens could on the analogy of excavations in the Habur be post-2000 B.C. *e.g.* nos. 166, 168, 194.

STRATUM 5. Sargonid, Ashur E, plan of Ishtar Temple, Billa 4 c, c. 2550 B.C.

This seems to be a mixed stratum with obvious overlaps on both sides.

STRATUM 6. c. 3000 B.C. The Royal Cemetery of Ur and corresponding material, Billa 5, Ashur G, cult stands, serpents in relief, reserved slip ware.

This was one of the richest and most prosperous periods in Gawra's history. Curiously enough the mound seems no longer devoted to temples but becomes exclusively a lay centre, with well-built mud brick houses on stone foundations. The town planning is orderly, streets are well distributed, there is a good drainage system, a central *maidan* or open square and the position of the city gates is clearly defined.

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A magnificent series of copper objects, many of them identical with material from the Royal Cemetery of Ur, illustrates the wealth of the city. The numerous needles and bobbins suggest that 'the finer textile arts' flourished at the time. The pottery reflects a different tradition from Stratum 7. The condition in which this settlement was found suggests that its last occupants had taken precipitate flight.

That the stratum was a composite one is palpably borne out by the evidence of the seals, two of which (nos. 57, 62) cannot, as I think, be pre-Sargonid, and could actually have been made during the third dynasty of Ur. Dr Speiser, quoting L. Legrain, says that the art of Sargon may well prove to be pre-Sargonid; but I cannot help thinking that there is just as much reason for saying that the art of Sargon may prove to be post-Sargonid. The fact is that the Sargonid period is one of transition, which while it has an identity of its own—especially in sculpture—reflects at both ends the influence of an archaic and of a newer period respectively.

STRATUM 7. Jemdet Nasr Period. Seals with geometric designs. Nineveh 5, Billa 6-7. Hissar 1 pottery, Billa ware. Ashur pottery ante-dating H.

This stratum, which unfortunately is ruined architecturally, seems to me to be on the border line between the Jemdet Nasr and the Dynastic period, as indicated especially by the seals. The pottery reflects both earlier and later traditions—nos. 69-71, as the author says, seem to be descended from much older Arpachiyah types, while no. 83 could perfectly well be late dynastic; and there are other types—no. 63, which look to be Jemdet Nasr. Of especial importance is the painted chalice of Billa ware, no. 58, also known as Nin. 5, since we have yet to determine how late this ware ran on. To this point we shall return again later.

STRATUM 8. Subdivided into 3 levels, A, B, C. A overlaps with Jemdet Nasr; B-C overlap with Uruk.

The temple in 8 C bears a close resemblance to the famous 'White Temple' of Uruk, and there are examples both of *Langraum* and of *Breitraum* construction. Especially interesting are the elaborated niched buttressed façades and the curious podia in the shrines; windows and the true arch also occur. In 8 A there is a diminution in the number of temples, and lay buildings increase, but I cannot see that there is adequate reason for supposing that the building centring

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round 848 and 822 is not a temple. It seems to me that in plan this building bears a perfectly good analogy to the central shrine of 8 c, and that the discarding of the niches and recesses in the newer building may be due merely to the breaking down of the older traditions.

The pottery, as may be expected, runs from Nin. 3-4 and the stamp seals are predominantly Nin. 3. Although certain red slip ware is implied to be Uruk there is as it happens no single illustrated example which can be called Uruk ware.

Strata anterior to 8. These, which are still in process of excavation, will presumably be described by Mr Bache, but Dr Speiser volunteers the interesting information that 8-11 are homogeneous. Below that level we may presumably expect the early Chalcolithic strata corresponding to Al 'Ubaid and Tepe Halaf. A few interesting objects from that earlier age have emerged from Dr Speiser's trial trenches and show correspondences with Arpachiyah. In this category the peg-shaped painted vase on fig. 210 described as a wall-peg calls for comment, as I believe that it is a very close parallel to the unusual peg-shaped vessels of early Persepolis, and suggest an Iranian connexion.

In general Dr. Speiser's book abounds in careful description and sound comment. A few small points suggest criticism or comparison. The terracotta figurine on pl. 32, no. 3 is certainly much older than the period represented by stratum 7—it is a typical 'Mother Goddess' type of the Tepe Halaf period. The hedgehog shown on pl. 34 (a) may aptly be compared with an older painted hedgehog from Arpachiyah. On plate 78, no. 5 the incised markings on the terracotta wheel, forming a rhomboidal figure, are clearly intended to represent the curious 'wooden fellow' used on chariots of the time of the Royal Cemetery of Ur (*cf.* the Royal Standard of Ur). The clay pellet with a Nin. 3 seal-impression shown on pl. 79, no. 10, though apparently unperforated, is somewhat analogous to the 'etiquette' jar-labels from Arpachiyah. In the description of flints on p. 85 I think that some reference might have been made to sickle-blades, as many of these flints must have been used as sickles. I would suggest that some of the metal objects described on p. 109 may have been component parts of balances; seeing that so many weights, and even a scale pan has been found, we would expect some trace of scales. On p. 131 I am a little doubtful as to the wisdom of stressing the Cypriote analogies for the seal illustrated on pl. 61, no. 67, for this very coarsely cut piece is the result of palpably unskilled labour and the subject could to my

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thinking easily pass as Mesopotamian. In speaking of the reserved slip technique I think it would be well to emphasize the fact that the reserved slip ware of Gawra is actually very different from that found at Ur, and we need not therefore expect contemporaneity in the process on different sites—a point which indeed does not escape Dr Speiser.

The correspondence of one of the early temples in 8 to the much later Karaindash building of Kassite times at Warka is duly noted; incidentally there are in addition a number of other elements in the Kassite religion descended from a much older tradition—especially the Kassite symbols on boundary stones and the seal-impressions of Susa type and sts 4 stratum at Ur.

Lastly, and to me one of the most interesting results of Dr Speiser's work at Gawra, is his conclusion on the pottery known as Ninevite 5, or alternatively as Billa ware. Dr Speiser seeks to prove that the pottery of this type dates back to the Jemdet Nasr and to the early dynastic age. To quote his words (p. 181): 'This result is to my thinking one of the most important contributions made possible by the excavation of Gawra and Billa'. On this point Dr Speiser has undoubtedly proved his case and is to be warmly congratulated thereon—moreover I believe that further excavations are likely to show that this pottery extends well back into the beginnings of the Jemdet Nasr age. For the present, the period of its undoubted *floruit* appears to be the turn of the Jemdet Nasr and the early dynastic period—on the associations not only of Nineveh but also of Tal Asmar and of course Gawra and Billa. On the other hand the fact that this pottery is now proved early should make us beware of assuming that it did not also persist for a long period of time. In Syria, as at Chagar Bazar, this pottery extends into a stratum of metal objects which I believe to be allied to the earlier half of Gawra 6. It is perhaps rash to prophesy, but I believe that future excavations will show that the late development of this pottery is to be seen in the light greenish grey empanelled ware which occurred so abundantly at Nineveh. In point of fact I do not think that there was ever as much difference in our respective opinions on the sequence of this ware as Dr Speiser would make out. On p. 181, while admitting that our opinions on the date of this ware are close enough for practical purposes, he says that our differences are more fundamental in that we are speaking of different sequences and refers to my statement in AAA, XX, p. 129, that the ware is definitely post-Jemdet Nasr. I still believe that this ware does continue beyond the Jemdet Nasr period, and would not withdraw my statement that we

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should consider the *possibility* of a Sargonid seal-impression belonging to the end of this period. On the other hand for the earlier terminus I would quote my remarks in AAA, XX, p. 132, that H and G at Ashur contained the remains of a painted tradition very nearly extinct, and particularly my statement on p. 174 where I compared the pottery under discussion with the Tepe Ali 'Abd series, and mentioned the Jemdet Nasr associations, and the fact that the general character of the weapons from that site was pre-Sargonid. In answer to a question put by Dr Speiser on p. 155 of his book I would say that in my opinion some of the seal impressions from Nineveh discussed in AAA, XX, p. 138 from Nin. 4-5 stratum of the Jemdet Nasr period, and accepted as a terminus *a quo* for the ware, must be considered contemporary with the earliest specimens of the ware. One more point of great importance is Dr Speiser's statement on p. 153 that the decoration is at first painted (Billa 7), and gradually gives way to incised types, Billa 6: it will be most interesting to see whether in fact future excavations at Gawra bear this out, as now that we have arrived at some measure of agreement on the sequence of Billa ware, we may hope to find more evidence for the development of this pottery. Certainly, as I have remarked before, the discoveries at Chagar Bazar show that the light greenish-grey empanelled ware came late in the series.

In effect the evidence amounts to this: that the end of the Jemdet Nasr period is practically indistinguishable from the early dynastic, and dovetails with it. The Nin. 5 or Billa ware belongs in large part to that era of transition, and no doubt eventually goes well back into the Jemdet Nasr age itself. The *floruit* of this pottery was certainly over by the Sargonid period, *i.e.* by c. 2550 B.C., but we must not deny the possibility that its latest stages may yet be found to reach that epoch—though possibly in marginal areas remote from its original home.

It remains only to congratulate Dr Speiser and all his colleagues on a great piece of work admirably performed. Vol. I of 'Gawra' is in itself the best testimonial to the skill of the entire Expedition, and the book is a model of conciseness, a fact for which we have good reason to be grateful seeing that day by day it becomes more difficult to keep pace with the results of excavation. The volume makes us burn with curiosity to learn of the discoveries in the bottom half of that remarkable mound, and it is to be hoped that before the lapse of many years we may look forward to the final publication of one of the most remarkable sites in Assyria.

Some Welsh Houses*

by IORWERTH C. PEATE

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THE interaction between man and his environment, which is the basic principle of the science of Geography, is well-illustrated in a study of house-types in Wales. A detailed survey of Welsh house-types is being carried out by the Department of Folk Culture of the National Museum of Wales. It is felt that a study of the traditional types will not only throw much light on the history of culture but will also clarify some issues in the anthropological and archaeological field. This paper may be considered as a brief interim report of part of the survey, supplemented by some material already recorded.

Wales is predominantly a high moorland plateau dissected by deep valleys which run, like the spokes of a great wheel, to north, east, south and west. The rivers Dee, Severn, Wye and Usk flow northeast and southeast, providing fertile tracts to serve as entrances into the Welsh moorland for influences from the English lowlands. The southern and northern coastal plains also afford easy entrances into Wales along the fringes of the highland. Two other factors should also be noticed. The northwestern region—Merionethshire and Snowdonia—is the mountainous (as opposed to moorland) area, while the great western promontories, Llŷn and Pembrokeshire, which are open to the westerly gales, have a character of their own. To the student of house-types, all these distinctions are important: (1) the high moorland with its scattered farmsteads; (2) the oak-growing region of the great rivers which flow from Wales into England; (3) the southern coastal plain having links with Gloucestershire, Wiltshire and Somerset; (4) the Merioneth-Snowdonia area with its slate quarries and (5) the bleak lands of Llŷn and northern Pembrokeshire. Of these classes, the present paper is concerned with the first, but a word is necessary concerning the others. In the oak-growing river-valleys of the Welsh borderland the half-timbered house is characteristic. This type is to be found, for instance, in the upper Severn valley and has intruded

* A paper read (in part) before Section H of the British Association for the Advancement of Science at Blackpool, 1936. Acknowledgment is made of a small grant from the University of Wales Board of Celtic Studies towards the survey of the Radnorshire houses made in July-August 1936.

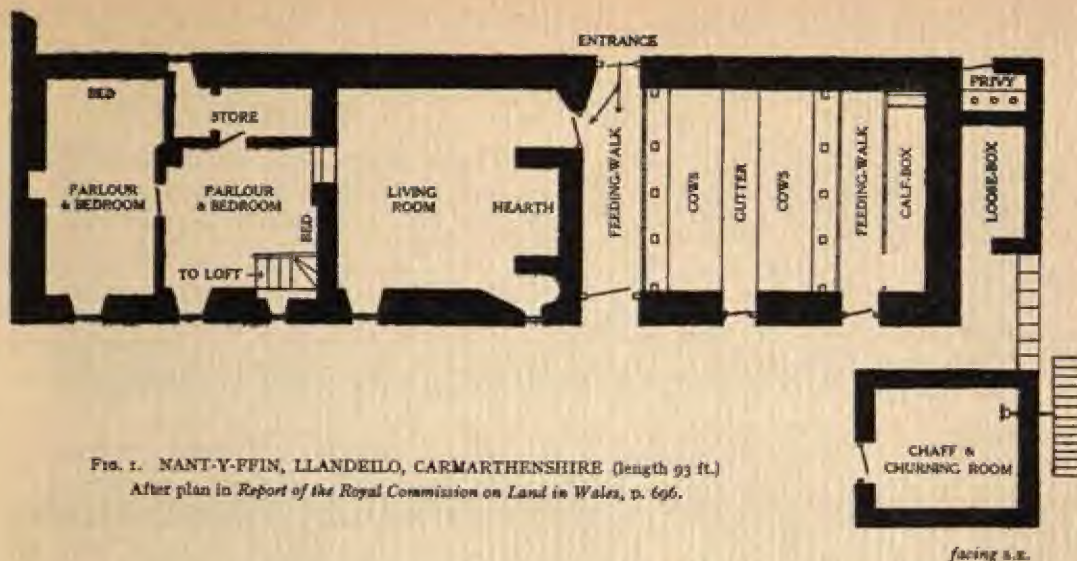


FIG. 1. NANT-Y-FFIN, LLANDEILO, CARMARTHENSHIRE (length 93 ft.)
After plan in *Report of the Royal Commission on Land in Wales*, p. 696.

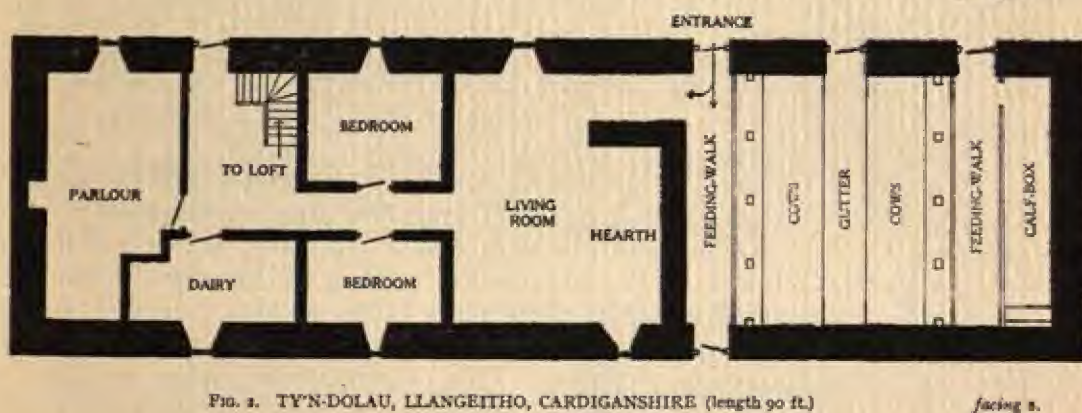


FIG. 2. TY'N-DOLAU, LLANGEITHO, CARDIGANSHIRE (length 90 ft.)

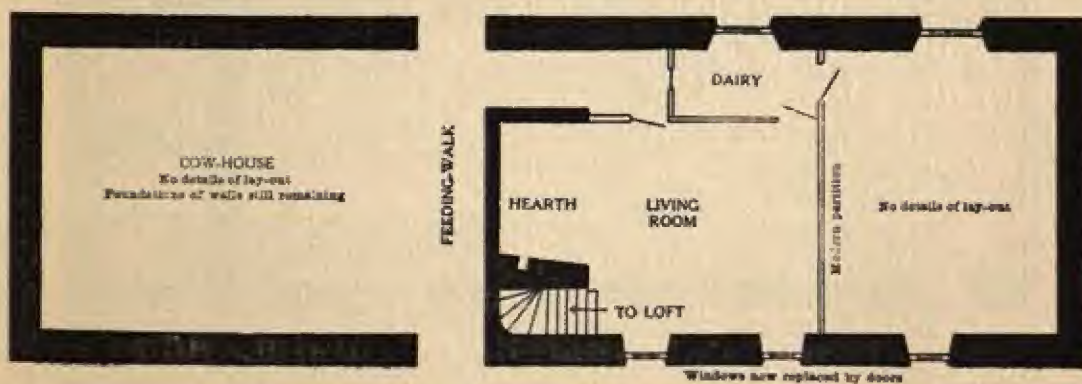


FIG. 3. NANNERTH CANOL, NEAR RHAYADER, RADNORSHIRE (length 85 ft.)

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over the watershed into west Montgomeryshire : the most westerly example overlooks the Dyfi estuary and Cardigan Bay in a salt-air district where the oak does not flourish. The southern coastal plain—the Vale of Glamorgan—has strong cultural links with the English lowland of which it is, in such a sense if not in other ways, a prolongation. Here are found not only pleasantly-coloured houses (*muriau gwynion Morgannwg*—the white walls of Glamorgan) but a thatching technique of a far higher order than that found on the moorland, due on the one hand to extensive wheat-growing and on the other to a virile craft-tradition probably associated with that of Wiltshire, Gloucestershire and Somerset. The houses of the slate-quarrying area of north Wales have, by the materials so produced, a character of their own ; while the bleak promontories of Llŷn and north Pembrokeshire have well-built massive stone houses of the type found, for instance, in Bardsey Island and in the St. David's district. In Pembrokeshire, this type has been influenced by the Norman castle-builders, one of the features being an adaptation for domestic purposes of the round chimneys of the Norman castles, long described erroneously as 'Flemish'.

The moorland long-house—if the term may be used—has a wide distribution in Wales. It is found in Carmarthenshire, Cardiganshire, Montgomeryshire, Radnorshire, Brecknockshire, and there are men still living who remember it in Glamorganshire. It is probable that further study will reveal a still wider distribution. From its very nature, it is a type which must disappear with great rapidity in this age of sanitary laws and centralized government. The fundamental issue which decided the lay-out of this type was the primitive need for shelter for man and animal on an open wind- and rain-swept moorland where easy access to the cattle in all weathers was a necessity. The resources for building were meagre : occasionally stone but more often clay and mud, held together by wattle or cow-hair, or both, and rushes for the roof—all the materials the products of the moorland. Peasant building knows no professional help : the peasant is both architect and builder. Having built, he is also the occupier.

The long-house is, as its name implies, a single, long, low, oblong building (PLATE I) divided into two parts ; the dwelling itself is at one end, generally called the 'upper end' (*pen uchaf*) and separated from the byre or 'lower end' (*pen isaf*) by a covered passage called '*penllawr*' (the head of the floor) or (in some districts) '*bing*' (FIGS. 1-3). This passage has doors, opposite one another, at each end ; back door and front door. These are generally the only entrances into the dwelling-house.

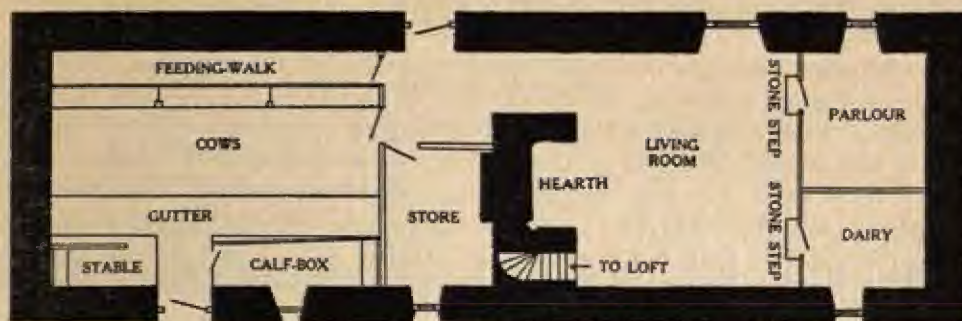


FIG. 4. LLANNERCH Y CAWR, CWM ELAN, RADNORSHIRE (length 75 ft.)

facing N.E.

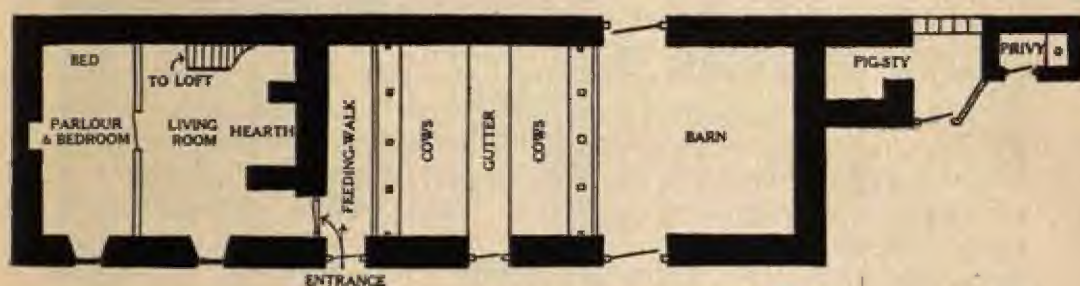


FIG. 5. LAN, LLANDEILO, CARMARTHENSHIRE (length 90 ft.)
After plan in R.C.L.W. Report

facing S.W.

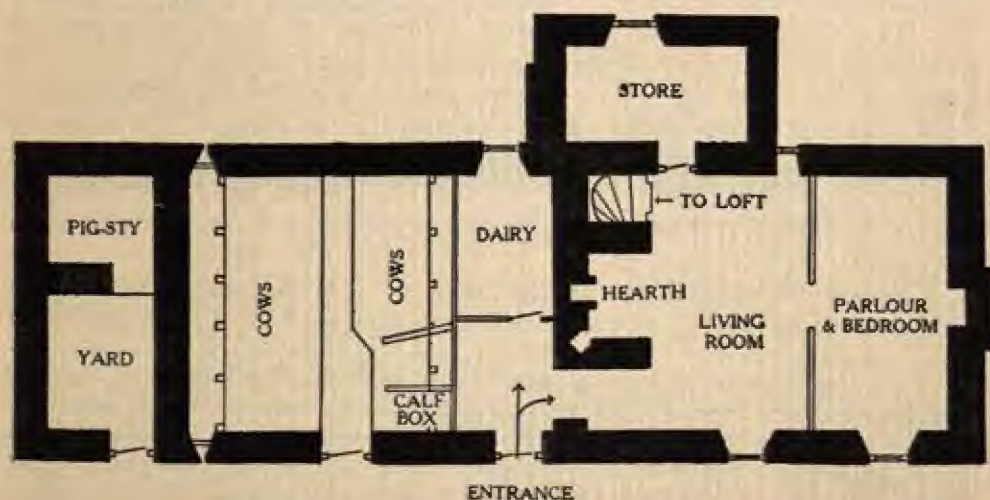


FIG. 6. BLAENWAUN, LLANSADWRN, CARMARTHENSHIRE (length 62 ft.)
After plan in R.C.L.W. Report

facing N.E.

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The passage also serves as a feeding-walk for the cattle, another door serving as entrance to the byre. It is obvious from the houses examined that originally the whole building consisted only of these two parts, dwelling-house and byre, upper end and lower end. The upper end was in early times almost certainly paved, the passage (penllawr—literally head of the floor) indicating the termination of the paving: the floor of the byre was of earth. At a later date however, the dwelling-house was partitioned off into a living room and parlour-and-bedroom, and in some instances third and fourth rooms (bedroom and dairy) were so created.

Above the dwelling-house there is a loft (towlod) approached in some instances by a staircase from without and in others by a staircase from within (FIGS. 1-10): generally of stone. The floor of the loft is usually on a level with the wall-plate, the only window being in the gable-end. In Carmarthenshire,¹ the roof is set on with couples (cyplau) linked by a tie resting on the wall-plate, with rough purlins; it is thatched with straw or rushes. In several cases the first layer was of boughs and twigs, over which was placed rushes, heather or fern, with straw as the topmost covering. This loft was used for storing wool, cheese and corn and as a bedroom for the servants. In several Radnorshire cases, the houses, although conforming in most essentials with the above description, were found to be of cruck* construction and generally had stone roofs.

The walls are always of great thickness, averaging from two to three feet and all the original windows are generally on one side (the front) of the building. This is often south except where topographical and other conditions govern the lay-out of the building. The chimney places without exception are large and capacious, the older type having a wattle-and-daub louvre in which the bacon was dried after salting. These chimneys still exist and further reference will be made to them later.

Before discussing the significance of the moorland long-house, attention must be drawn to some references to it in Welsh literature

¹ I am indebted for descriptions and photographs of the Carmarthenshire examples to the report of the Royal Commission on Land in Wales (1896), pp. 690 ff., and to the Commission's Secretary, Sir D. Lleufer Thomas, who has placed in the National Museum of Wales a number of plans and photographs prepared for that report but which did not appear in it. But for his foresight this valuable evidence would have been lost.

* For this type see C. F. Innocent: *The Development of English Building Construction*, pp. 23-61.

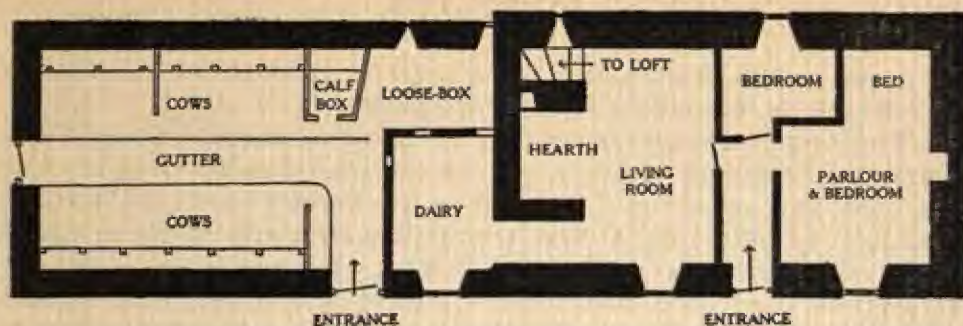


FIG. 7. CWMEILATH, LLANSADWRN, CARMARTHENSHIRE (length 73 ft.)

facing S.E.

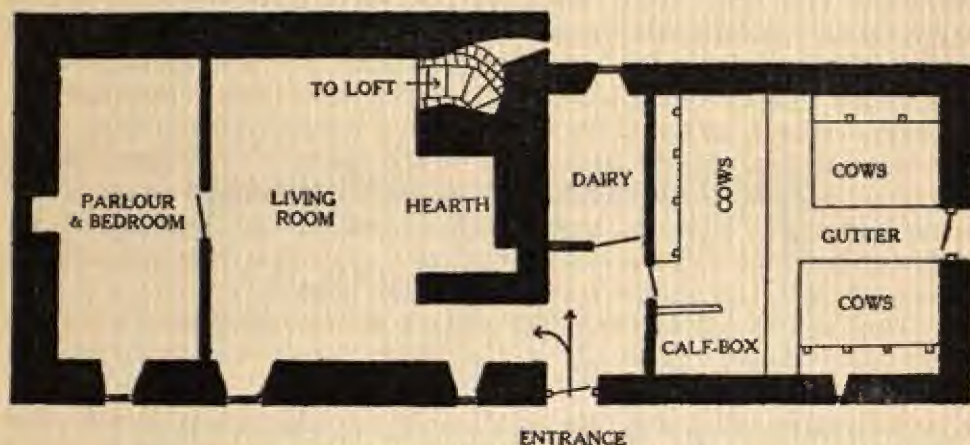


FIG. 8. ESGAIR, LLANSADWRN, CARMARTHENSHIRE (length 61 ft.)

facing S.E.

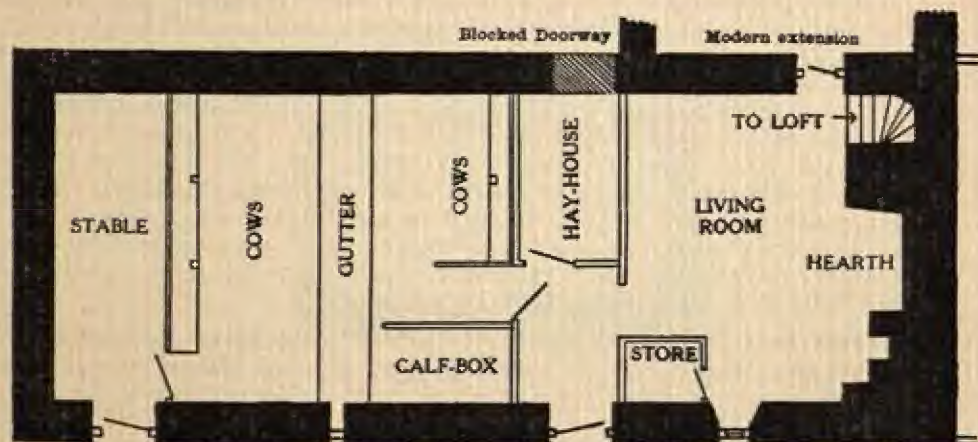


FIG. 9. CILGERWYNT, DYFFRYN CLAERWEN, RADNORSHIRE (length 57 ft.)

facing S.E.

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and records, which establish its antiquity. The most satisfactory method will be to trace its history backwards.

The long-house appears to have been fairly common on the Welsh moorland in the 19th century. It was the second half of that century which saw the beginning of its rapid disappearance. Detailed descriptions of some long-houses then in existence are given in the report of the Royal Commission on Land in Wales. Unfortunately it was not the practice of most of those English tourists who 'discovered' Wales in the late 18th century to describe houses and the next piece of evidence comes from an early 17th century manuscript² entitled 'Depositions taken the 21st April 1607 concerning the setting on fire of a barn in Machynlleth, Montgomeryshire'. We find these references: 'the said David brought in his hand into his house fire in a cowsherd . . . with which he fired some straw that he held in his hand and then delivered the same straw kindled to his wife and she went to look at some kine that were tied up in the lower end of the house'. Another witness thought 'to have the fire whereby she might have light to go to the lower end of the house to look to certain kine of hers that one of her children had that evening before tied up'. A third witness speaks of 'a cow he had sick in the lower end of his house'.

The earliest manuscript description is given in Rhonabwy's Dream in *The Mabinogion*. This tale was committed to writing in the middle of the 12th century, but much of it (as with most Welsh folk-tales) is considerably older than the manuscript in which it is found. To quote from it in translation:—

And Rhonabwy and Kynfrig Frychgoch, a man of Mawddwy, and Cadwgan Fras, a man of Moelfre in Cynllaith, came together to the house of Heilyn Goch the son of Cadwgan the son of Iddon. And when they came to the house, they saw an old hall, very black and lofty, whence issued a great smoke; and on entering, they found the floor uneven and full of puddles and where it sloped it was difficult to stand thereon, so slippery was it with the mire of cattle. And where the puddles were, a man might go up to his ankles in water and dirt. And there were boughs of holly spread over the floor, whereof the cattle had browsed the sprigs . . . And being weary with their journey, they laid themselves down and sought to sleep. And when they looked at the raised platform (*tyle*) there was on it only a little coarse straw full of dust and fleas, with the stems of boughs frequent in it for the cattle had eaten all the straw from head and foot.

Having established the antiquity of the long-house in Wales, we shall find its distribution in northwestern Europe illuminating. Dr

² P.R.O. MS. Wales 4-141-3. Reference given by Prof. E. A. Lewis of Aberystwyth. Acknowledgment is made to Miss Amy Foster, the Central Library, Cardiff, for transcribing this manuscript.

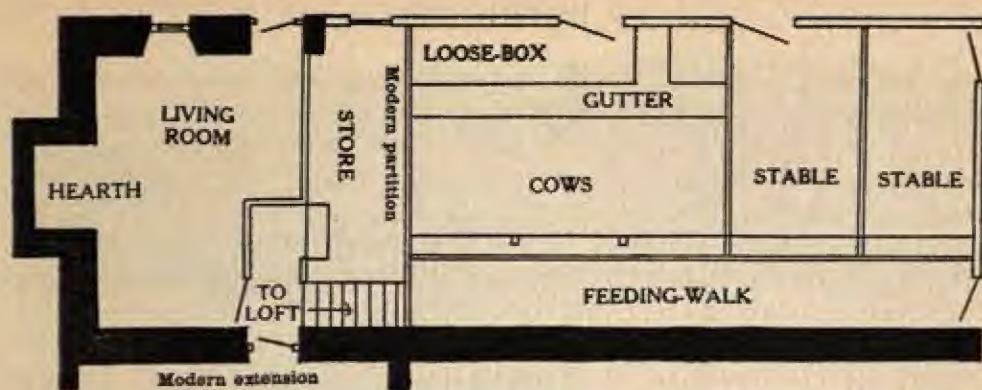


FIG. 10. PANT-Y-DRAIN, KERRY, MONTGOMERYSHIRE (length 55 ft.)

facing S.W.



FIG. 11. GREAT MAINS (JIN'S HOUSE), LLAETHDY, RADNORSHIRE (length 36 ft.)

facing S.E.



FIG. 12. PENSARN-MYNACH, CRIBYN, CARDIGANSHIRE (length 33 ft.)

facing E.S.E.

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Campbell of Uppsala (to whom I am indebted for much light on various problems) has noted it in Ireland³ and points out that there also it had two doors, opposite one another, leading to the front and back; this, as we have seen, is the rule in each Welsh example which has a transverse feeding-walk. It occurred too in Cumberland. Dickinson⁴, writing in 1875, states: 'A century ago, many sets of farm buildings consisted of oblong blocks adjoining the farm yards. The dwelling at one end of the block was separated from the outbuildings by a covered passage. There was an inner door opening out of the passage into the kitchen or living room and another on the opposite side into the byre; and the passage was a common thoroughfare for men and dogs, horses, cattle, wheelbarrow, poultry, etc.'

But the type in a more primitive form is to be found in the Scottish Isles. The reader will remember that Burns⁵ in *The Cotter's Saturday Night* (II, 93-4) writes:—

The Sowpe their only hawkie does afford
That 'yont the hallan snugly chowse her cood.

The form has been described in great detail by Roussell⁶ who writes:—

Coming in from the road you bend your head and step in at the door in the middle of the long side and find yourself in a gloomy byre. Just inside the door a pavement runs right across the house but immediately on its left is a step . . . down to an earth floor. This is where the cattle are kept, on a layer of manure which grows steadily throughout the winter . . . In the gable of the byre is an opening closed with a wall of turf: every spring, when the cattle are let out into the open, this wall is broken down and there is a thorough mucking out.

We must compare with this the plans (FIGS. 7, 8) of two farmhouses in Carmarthenshire which have their byre doors in the gable-ends with the gutter running lengthwise at right-angles to the gable and not parallel with it. The survey is at too early a stage to come to any conclusion on this similarity but it may be suggested tentatively that this feature in the Welsh houses shows the persistence of an old tradition still found in the Scottish Isles. If this suggestion holds, then the type can be traced to ancient times. The gable opening, as Roussell points out, is mentioned in the saga literature and had been forgotten in Iceland before the saga 'received its finally edited form in the fourteenth century'. In this connexion, attention must be drawn to Stenberger's work⁷ on late fifth-century houses on the island of Öland

³ In *Béaloideas*, 1935, p. 68.

⁴ [W. Dickinson]: *Cumbria*, 1875, p. 197.

⁵ I am indebted to Principal J. F. Rees, University College, Cardiff, for this reference.

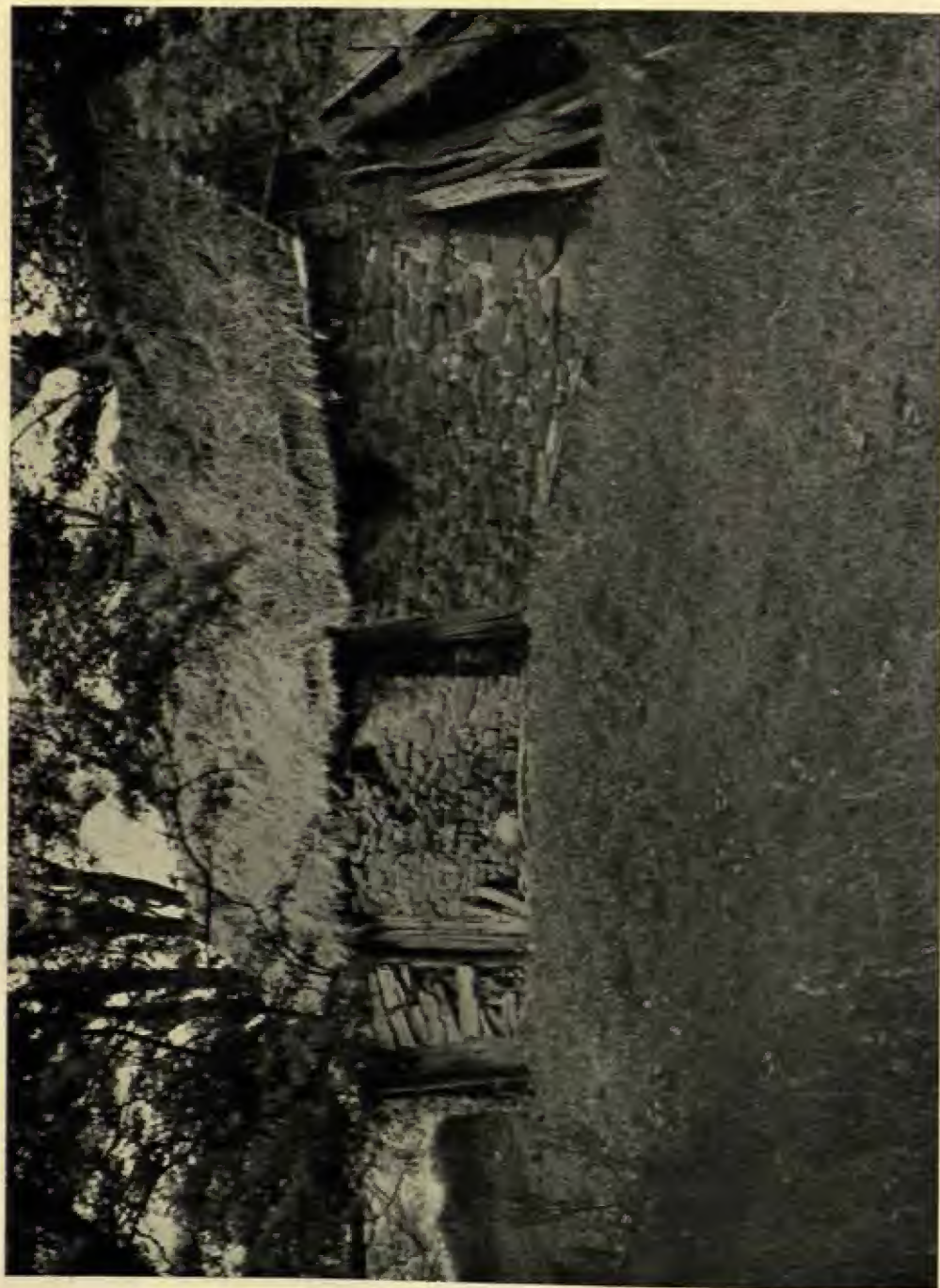
⁶ Aage Roussell, *Norse Building Customs in the Scottish Isles*, 1934.

⁷ Mårten Stenberger: 'Remnants of Iron Age Houses on Öland' in *Acta Archaeologica*, 1931, II, 93-104.



CILGERWYNT, DYFFRYN CLAEWEN, RADNORSHIRE (see p. 450).
A medieval long-house of 18th century date still in use (for plan see Fig. 9). The central door leads to both dwelling-house and byre. Photographed August 1936
P. National Museum of Wales

PLATE II



GREAT MAINS, LEATHDY, RADNORSHIRE (see p. 459 and for plan see Fig. 11)

A one-roomed cottage with (later) outhouse (see left hand of photograph). Photographed August 1936

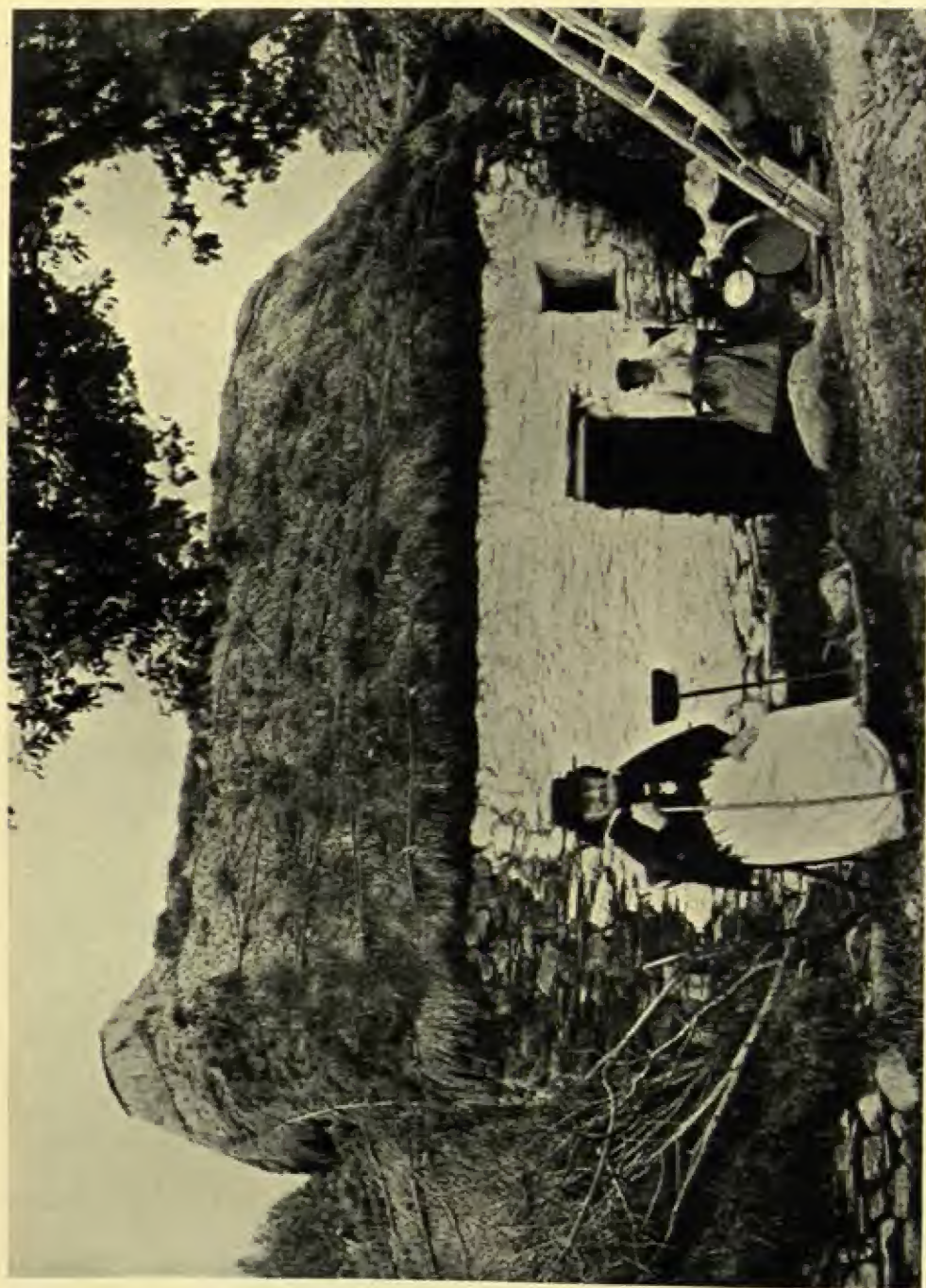
PLATE III



PENSARN-MYNACH, CRIBYN, CARDIGANSHIRE (see p. 429 and for plan see Fig. 12)

A mud-walled cottage with later stone outhouse (see right-hand of photograph). The chimney will be seen in centre of roof. Photographed November 1934
P9, National Museum of Wales

PLATE IV



COTTAGE AT PONT-RHYD-FENDIGAIID, CARDIGANSHIRE (see p. 459)

Note inferior thatching and chimney. (The medal worn by the old lady is for long attendance at Sunday School. Photographed about 1910)

Ph. W. R. Hall

SOME WELSH HOUSES

in the Baltic. Here again were found houses with two entrances—one in the side and the other in the gable end. Here also the end of the house which had the gable entrance had a floor of stamped earth while the other was paved with stones. This should be compared with the Scottish examples still in existence and with the Welsh long-house, where in each case, as we have seen, the living quarters are known as the upper end (*pen uchaf*) and the byre as lower end (*pen isaf*), the paved floor ending in the '*penllawr*' (passage). It will be recalled too that the description in Rhonabwy's Dream refers to a '*tyle*' which can best be interpreted as a raised platform.⁸ Finally, Professor W. J. Gruffydd draws my attention to a feature which has persisted to this day in many Caernarvonshire cottages. In his own home in Bethel, Caernarvonshire—a house built about 1850—with four bedrooms and a tiled kitchen, the tradition persisted of building on one side of the kitchen a raised platform of slate, six inches above the tiled floor and about two feet six inches wide. On this was placed without exception the long-case clock and the dresser, *i.e.*, the valuables of the kitchen. This seems to me to be a survival of the old '*tyle*' or paved platform of ancient times, represented in the moorland long-house by the '*upper end*', with parallels still extant in the Scottish Isles and also in fifth-century houses in Scandinavia.

It will be noticed that no reference has been made to the house

⁸ This word *tyle* was translated by Lady Guest as '*couch*'. Its gender in *Breuddwyd Rhonabwy* is feminine, whereas generally it is masculine. Over a large area of Wales its one meaning is '*hill, raised ground, mound*'. With this, cf. Irish *tulach*, '*hill*', which seems to be related (for *-ach* = *-e*, cf. *imbárach* = *bore*). Lewis's *tyle* = Irish *tolg* '*bed*' must be rejected. Irish *colg*, *bolg* correspond with *col*, *coly*, and *bol*, *boly* not with **cyle* and **byle*. But *tolg* + *lle* *i.e.* '*the place of a bed*' would not only give the form *tyle* but also account for the gender of the noun in this tale, since *lle* used to be feminine. *Safle*, lit. '*place to stand*' and *tyle* '*place to lie*' would then be antithetical nouns. In *Ancient Laws*, i, 454, reference is made to a sow *ar y thyle* and ii, 77, '*partus suis dum sit ar e thele*' with the explanation '*[in suili]*'. It is noteworthy that the sty is always raised above the sty-yard in the same way that the '*raised platform*' of the house is above the byre. I am confident therefore that the *tyle* of medieval times when used in relation to buildings referred to a raised platform in house and pigsty alike on which straw was generally laid to form a bed. It may be that *tyle* '*hill*' (masculine) and *tyle* '*raised platform*' (feminine) are two different words derived, as suggested, from different sources: but this is a problem for the philologists to whom I leave it.

I am indebted to Dr Ifor Williams, University College, Bangor, for exhaustive references to and notes on this word, and for many suggestions. This note owes its origin to the information he has given me, but he is not of course responsible for the conclusions which I have reached.

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mentioned in the Welsh Laws which has been described by Seebohm.⁹ Richmond¹⁰ in describing an Irish parallel suggests a Romano-British connexion but in the present state of our knowledge this cannot be substantiated, especially since, as Campbell¹¹ points out, the inferior dwelling which we are discussing may represent 'an original and inferior phase of development' in the upper-class dwelling referred to in the Welsh and Irish Laws.

Brief reference must be made to the fireplace. In all the Carmarthenshire-Cardiganshire examples illustrated, the fire is at floor-level up against the wall which separates the living-room from the byre, and from its central position represents a persistence of the central-hearth tradition, the partitioning wall behind being a later innovation. In some of the houses illustrated, built-in ovens are shown, from which it might be inferred that the built-in oven culture of the Middle and Eastern European tradition is the dominating culture of the Welsh moorland. Such an assumption would be incorrect. The practice has persisted—notably in Cardiganshire—of cooking in a baking-pot which is encased in burning turf while the 'gradell' (griddle), for baking bread is still used. We find therefore at a late date (*i.e.*, post 1850) a convergence of the built-in oven culture with that of the open hearth, the built-in oven being an importation from the English lowland.

Some of the Radnorshire-Montgomeryshire houses illustrated (FIGS. 3, 4, 9, 10 and PLATE 1) present features different from those of the Carmarthenshire-Cardiganshire area. They have however 'suffered' from reconstruction and alteration. Ciloeurwynt (FIG. 9 and PLATE 1)—dated 1734 on the lintel of the door, which is probably the date of the house—is of the ordinary type in that it had formerly a passage between upper and lower end. But the hearth is not central. It is at the gable wall in accordance with what Campbell (*op. cit.*) calls 'West-European tradition'. Nor is it in Pant-y-drain (FIG. 10), which is a good example of the adaptation of the moorland long-house to valley conditions in the oak-growing area of Montgomeryshire. Here the greater portion of the byre is built in wood. A modern brick-wall has been built to separate the byre from the dwelling, but entrance to the cowhouse is still effected by a ladder from the loft. In both Pant-y-drain and Llannerch-y-cawr (FIGS. 4, 10) the floor-level of the dwelling (or part

⁹ F. Seebohm, *The English Village Community*, 1883, pp. 239-41.

¹⁰ I. A. Richmond: 'Irish Analogies for the Romano-British Barn Dwellings', *Journal of Roman Studies*, XXII, 96-106.

¹¹ *op. cit.*, p. 66.

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of it) is raised well above the byre.* In Pant-y-drain, a stone step leads from the 'passage' to the 'lower end': in Llannerch-y-cawr similar steps lead up from the kitchen to both parlour and dairy.

A note should be added concerning the moorland cottage. Their materials and modes of construction differ widely in different districts: the walls are of oak framing in the well-timbered counties, of stone in most districts, of mud in alluvial valleys or clay-covered plateaus where stone is not readily obtainable. The roofs are of straw or rush thatch, of stone or of slate, again according to district. No detailed classification is possible until the whole area has been surveyed in detail.

A cottage in the Llaethdy district of Radnorshire (O.S. 6 in. sheet, IV, SW)—FIG. 11 and PLATE II—known as Great Mains or, colloquially, 'Jin's House' from its last inhabitant who occupied it within living memory, is a stone-built structure with a (later) stone-and-timber outhouse at its western end. The framing of the roof is of the type already described, with purlins of rough unhewn branches. The roof is of rushes with a ridge of grass-grown clods. The one room of the cottage is divided by low board partitions into three—living room, bedroom and 'dairy' or pantry. The fireplace is of open hearth type. Above it, is a wattle-and-daub louvre.

Another cottage, Pensarn-mynach, Cribyn, Cardiganshire (FIG. 12, PLATE III) has two rooms with a central passage and a small pantry. Here again the chimney-place is of wattle-and-daub louvre type. In both cases, the smoke escapes through a hole in the thatch. There is no external chimney and this type may be regarded as the first stage in the development of the chimney. In the next stage the wattle has been extended above the line of the ridge and thatched (PLATE IV illustrates a primitive moorland-cottage in Cardiganshire). In the final stages of development the wattle-and-daub construction appears in chimney-pot form well above the ridge and is not thatched. The chimney has emerged as a feature distinct from the roof itself.

Finally, it must be reiterated that the present survey is only in its initial stages. To adapt Dr Campbell's words: by studying all old houses which are still in existence in Wales, by segregating and distinguishing the types and their distribution and by relating them to those described in Welsh literature it may be possible to solve that interesting problem—the evolution of the Welsh house.

* cf. also Nant-y-ffin, Llandeilo, Carmarthenshire (FIG. 1).

Notes and News

'PRESELY'

An anonymous correspondent has protested, on a postcard, against the spelling of this name used by Mr Alexander Keiller, F.S.A., in his note on axes of Presely stone, in *ANTIQUITY*, x, 220-1. We did not ask Mr Keiller to alter this spelling because we knew that it was more correct than the spelling 'Prescelly' adopted on the Ordnance Maps. Both Mr Keiller and the Editor consulted Welsh-speaking scholars, with the result that both replied strongly deprecating the use of the form 'Prescelly'. The forms preferred are Presely or Preselau, which are virtually identical, -au being pronounced like -y. Professor Ifor Williams' reply is so instructive and full of learning that, with his permission, we quote it in full.

I am in favour of Preselau as the map form, and literary form, of this name.

The earliest form I can find is *Presseleu*, e.g., Red Book *Mabinogion*, p. 18, *y bresseleu yn dyuet*, 138, *hyt ym presseleu*. The White Book *Mabinogion* in these passages has '*y bresseleu* (w.m. 14a) and *ympresseleu* (251a). R.B. as you know can be dated c. 1400 and W.B. c. 1300. These instances are valuable because they occur in Welsh tales copied by Welsh scribes, and are not the work of Norman scribes bungling over strange and unfamiliar Welsh words. In the first instance the name is mutated after the preposition *y*, and the final letter is ambiguous, for *v* stands in R.B. both for our *v* and our *u*. The W.B. form is in favour of *u*. In my edition of the *Mabinogi* (P.K.M. 140-1) I explained the name as a compound of *prys* 'bush, wood', and *Seleu*, a variant of *Selyf*, the Welsh borrowing from *Salomo*, Solomon. You will find the same interchange of *y* and *e* in the initial syllable of *Prysaddfed*, *Presaddfed* in the Anglesey place-name, and of -*yf* and -*eu* in the final syllable in *cleddyf* 'sword', and *cleddeu*, now *cleddau*. In the Pembroke river-name the *Liber Landavensis* of the early 12th century has *dou cledif* (p. 124, not *Clediv* as the Index), *doucledif* (127): the Red Book *Bruts* (p. 361) has *deu gledyf*. Owen's *Pembrokeshire* (1603) has *Percele*

NOTES AND NEWS

hill for mynydd Presseleu, and *Dvngledy* for Deugleddyf on the map drawn by G. Owen (part 1); see also part 1, p. 103, where the river is *Cledhe*, and the mountain *Percellye* (but p. 100, *Perseley*). On p. 96 and 97 he has *Cledde*, *Clethe*, and *Cleddey*. The editor, in a note on p. 103, explains *Presseleu* (or *Presselau*); 'The word *presel* is said to have been locally used in S.E. Wales in the sense of a brake, or place overgrown with furze, etc.'. I have failed to find an instance of *presel* outside of Pughe's dictionary. Richards was a South Walian, and he gives only *prys*, *prysg*, *prysgoed* 'shrubs, a copse, an underwood'; *prysgyle* 'a place overgrown with shrubs'. Lhuyd in *Arch. Brit.* does not give *presel*, though he prints columns of words omitted in Dr Davies's dictionary. Dr Davies in the Duplex Dictionary of 1632 gives *prys*, *prysg*, and *prysgoed* 'arbusta, arboretum'. But Pughe gives the whole series, *presel*, *preselaidd*, *preselawg*, *preselder*, *preseliad*, *preselu*, and *preselyn*: also *prysel* and under *preselu*, 'to become wild or overgrown', he quotes '*mae y tir yn preselu ganto*'—the land grows foul under his care. This he denotes as *Sil.*, for *Silurian* I suppose. I cannot accept a word as genuine, simply because it occurs in Pughe's dictionary—he invented hundreds from suppositious roots. On the other hand I cannot reject *prysel*, *presel*, outright: it is a possible form from *prys*, perhaps, though the *-el* troubles me. *Uchel*, *isel*, are adjectives, not nouns. *Gadel* however is a verb-noun, a variant of *gadael*, but I cannot imagine *gadelu*! I cannot find any of these forms in the glossaries printed in the Bulletin of the Board of Celtic Studies from the Peniarth MSS: they don't occur in the copies I have of W. Llŷn's glossary (c. 1560–80). If you want to write a note on the word, give Pughe's explanation (I am using the 2nd ed.), and say that I cannot corroborate, as I've failed so far to discover an instance of it. It may crop up in a list of South Welsh dialectal forms. Who knows? In the meantime, I prefer to stick to 'Solomon's Grove', whether wisely or not!

Whether you take *Preselau* as a plural of *presel*, or as a compound of *Pres* and *Seleu*, the later development is identical: *-eu* weakens to *-e* in most Welsh dialects (cf. *Cleddeu*, *Cledde* from an original *Cledddyf*). So *Selyf*, *Seleu*, *Sele* (cf. the Dolgellau Hywel *Sele*). Just as Dolgellau gave *Dolgelle*, with a variant spelling *Dolgelly* (by English writers), so *Presele* varies with *Presely*, e.g., Owen's Catalogue of MSS. relating to Wales in the British Museum, III, 689, *Pressely*: Professor W. Rees's 14th century map has a *Preskely* manor, and *Preskely* forest: cf. his Deugleddy, and Deugleddy. The *Black Book of St. Davids* also has

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Preskely (Willis-Bund, Cymmrodor ed., p. 116) and on the map prefaced to this edition you will find *Priskilly*, but this is some distance away from *Precelly* mountain. The latter is given by Rees as *Presselewe*.

I am afraid that this muddle of notes will be of little help to you. You will prefer, I think, to accept the Mabinogion form, *Presseleu*, and modernize it to *Presselau* for your map, and let the etymology be for a while, until the hunt is over for *presel*.
IFOR WILLIAMS.

From this it will be seen that our anonymous correspondent's claim, that the spelling *Presely* 'is not used by any Welsh authorities' has no basis in fact. On the contrary it is the form preferred by those best qualified to judge. As regards the term '*Preselite*' for the rock, which our correspondent calls 'an abomination in rock nomenclature', it is obvious, in view of the facts stated above, that the spelling of the rock-name should conform with that of the place; nor can we see why Welsh places should not be used to give names to rocks as much as any others! That is the custom of geologists, and we cannot see why it should be called 'abominable'. The principle adopted is an old-established one and was used in classical times if not before. Copper got its name from Cyprus; china-ware from China; why not *Preselite* from *Presely*?

INTRODUCTION OF THE RABBIT INTO ENGLAND

We have received the following letter from Mr W. L. ORGILL:—

'I should like to call your attention to the evidence as to the influence of rabbits on vegetation adduced by Dr E. P. Farrow in his *Plant Life on East Anglian Heaths* (Cambridge University Press, 1925).

'This book is not, as its title rather suggests, of local interest only. As a result of most careful observations and experiment the author (p. 104) reaches the cautiously worded conclusion that "apparently the presence of rabbits alone is sufficient to change the potentially dominant plant on Caversham Heath [Suffolk] from *Pinus Sylvestris* to *Pteris Aquilina* [bracken] through a long number of various stages. This is clearly a profound change. The passing of England from a forest period to a grassland period may of late have been accelerated by the influence of rabbits."

'Now if this is so the date when the rabbit was introduced into England (it is certainly not a native) is clearly of importance and it is at present quite unknown.

'The first reference to coneys I have so far found is in 1263—

NOTES AND NEWS

"Conningshurst", Surrey (English Place-name Society, XI, 239), but this of course only shows that they were then common there.

'There is I believe only one known reference to the pheasant in England before the Norman Conquest—in a Latin document which shows that they were an ordinary article of diet in 1059 (Yarrell, *British Birds*, 4th ed., III, 94).

'If by any chance bones or other evidence of the rabbit could be found clearly dating from before the English Settlement it would go far towards explaining the local thinning of the woodlands, and especially the mysterious disappearance of the Scotch Pine.

'This tree was common after the Glacial Period (Clement Reid, *Origin of English Flora*) but must have been at least rare when the English arrived as it is absent from the place-names, while hundreds of them refer to other trees. This cannot have been due to any change in the climate as many less hardy and adaptable plants survived, nor do I think that all the seedlings could have been eaten off by sheep or cattle, as a considerable number must have grown where nothing but a rabbit could get at them.

'Taking all this into consideration it seems to me that any evidence as to the date when the rabbit was introduced should be carefully recorded'.

PRIMITIVE WHEEL-BARROWS (PLATES I-III)

The history of the wheel-barrow has yet to be written, and a place assigned to it in the evolution of primitive transport. Possibly it is a late-comer; it seems to have a restricted area of distribution, and its use obviously implies the existence of level ground or footpaths, if not of roads. With the exception of the Hunza wheel-barrow described below by Mrs Lorimer, examples from the primitive cultures of the past or present are hard to think of. Is it quite a modern institution?

The wheel-barrow shown on PLATE I was photographed near Drum, co. Monaghan, Ireland. It will be seen that it has a solid wooden wheel revolving with the *wooden* axle. There are no sides and the bottom is very low and near the ground. The whole appearance recalls that of the sled-cart which is actually in use in the same place (see *ANTIQUITY*, 1935, IX, plate opp. p. 134).

The barrow illustrated on PLATE II (from Cornwall) was described by the owner as a 'miners' wheelbarrow'. The general appearance is quite different, resembling rather a box on wheels; and it suggests derivation from a handled tray carried by two men.

ANTIQUITY

NOTE ON THE WHEEL-BARROW OF HUNZA

by E. O. LORIMER

The inhabited oases of Hunza*—alluvial slopes often as much as 500 and 800 feet above the river that has cut its way through them—are so steep, and water is so scarce, that all cultivation has to be in terraced fields ; a field only a few yards wide held up by a revetting wall of anything from 5 to 15 feet high. Access from level to level is either by stony steep tracks between loose side walls, which serve both as irrigation channels and footpaths (barefooted people finding no inconvenience in wading through water on occasion), or else by perpendicular 'stiles' formed of rough stones built into and projecting from the revetting walls. In these circumstances wheeled traffic is unthinkable and even the use of pack animals for cartage from field to field is barred.

Only on the comparatively rare occasions when a new field is being levelled and piles of sorted, graded stones and of sifted earth are being carried forward from the back of the excavated field to the raised front, is a rude barrow sometimes employed. A small ladder-like frame, consisting of two poplar-poles joined by three or four rungs is constructed for the purpose. Into a space between two rungs one of the tapering shoulder-baskets of the country is lashed. At the other end of the frame a solid horizontal section of tree trunk (roughly 11-12 inches in diameter and 7 or 8 inches thick) is impaled on a stick and inserted in lieu of another rung. The 'wheel' does not rotate on its axis, but the axis itself rotates in the two holes in the side poles. The jarring of the somewhat irregular and wobbly wheel against the sides is mitigated by two wicker rings (about the size of large wooden curtain rings) threaded on the axis at each side of the wheel. Since the distances to be traversed are slight, at most a few yards, the crudeness of the barrow, and the friction of the axis in its sockets, are of little moment (PLATE III).

It seems probable that some ingenious Hunzukuts devised this barrow on the model of a more elaborate one seen somewhere on his travels, but it may have been locally evolved, though there is no other wheel of any sort in the country. The fact, however, that the barrow is called 'araba'—an almost universal word (Arabic in origin) throughout the East for any form of carriage—seems to point to foreign inspiration.

* Hunza, the most northerly out-post of British India, is amongst the lofty ranges of the Karakoram, on the borders of Chitral, Afghanistan, and Chinese Turkestan.

PLATE I



WHEEL-BARROW ON TOWNLAND OF DRUMGRONE, NEAR DRUM, CO. MONAGHAN, IRELAND. (See p. 463)
Ph. O. G. S. Crawford, 1934

PLATE II



CORNISH MINER'S WHEEL-JARROW, IN USE NEAR ST. AGNES, CORNWALL. (See p. 46)
Pl. II. C. & C. Crawford

PLATE III



WHEEL-BARROW ('ARABA') USED IN HUNZA. (See p. 464)

PLATE IV



ROMAN BOAT, LANDESMUSEUM, TRIER. (See p. 468)
Ph. Landesmuseum, Trier

PLATE V



IBEX HORNS, SHABWA, SOUTH ARABIA. (See p. 473)

Ph. Hans Hellritz



IBEX HORNS, MAFUT, SOUTH ARABIA. (See p. 475)

Ph. Hans Hellritz

PLATE VI



GENERAL VIEW OF THE
AERIAL PHOTOGRAPH OF THE PRINCE OF MONTE
CASSINO, MOUNTAIN OF MONTE PRINCE, IN ITALY

PLATE VII



AIR-PHOTOGRAPH, SHOWING CROP-MARKS, CATERN'S HILL, NEAR BASINGSTOKE, HANTS. (See p. 477)

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NOTES AND NEWS

The ladder-like frame, however, is called ' tserang ', a native, Burushaski word used also of a door-frame.

It seems probable that the evolution of the barrow was subsequent to the introduction or invention of the runged ladder. The original ladder of the country is a notched tree-trunk, still seen everywhere in everyday use, though gradually being superseded in the more recently built houses by the runged ladder, which has probably been in use only for a generation or two.

In 14 months' residence we saw these barrows in use only three or four times and we suspected that there were in fact only two specimens in our district, and that these were lent by the proud possessors to any neighbour requiring one. They were certainly not part of the normal equipment of every farmstead.

BURWELL CASTLE

In the course of preparing the article on earthworks for the forthcoming Cambridgeshire volume of the Victoria County History it has been necessary to examine the peculiar site known as Spring Close at Burwell in the southeastern part of the county four miles northwest of Newmarket. The accompanying sketch-plan (p. 467) will show the present state of the earthworks and also other features of great interest which have recently been revealed by trial excavations. They are the remains of Burwell castle, a fortress which owed its inception to King Stephen in 1143, when he ordered the building of a series of castles to restrain the marauding Geoffrey de Mandeville, who had revolted and seized the abbey of Ramsey with its surrounding island in the Cambridgeshire Fens.

An examination of the site in the field shows at once that we are in the presence of an unfinished castle, comparable in another age to the unfinished Early Iron Age hill-fort of Ladle Hill near Newbury, Berkshire, which has been described by Mr Stuart Piggott.¹

The castle was to have had a motte and bailey, standing on a rectangular island with longer axis running east and west, left by digging a formidable moat in the edge of the higher chalk land at the south end of Burwell village overlooking the Fen. This particular spot was chosen because a powerful spring breaks from the chalk to the west of Burwell church and could be used to fill the moat.

Along the outer edges of the moat, on its northern and western sides, there now stand considerable mounds of material which has

¹ *ANTIQUITY*, 1931, v, 474-85.

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obviously been excavated from it, and in the inner edges of these heaps are depressions leading down into the moat (E, F, G and H on PLAN). These last are runways up which the excavated material was brought, and the dumps have never been spread as they would have been in the event of the castle being completed and put into a proper state of defence. As they stand they command the castle-site proper.

The view has been put forward that these mounds are remains of the works erected when Geoffrey attacked the place in 1143 or 1144. He seems to have found the place in a completely defenceless condition, but some resistance must have been made for, according to the Ramsey Chronicle,¹ and the Chronicle of Gervase,² he was wounded by an arrow and died later at Mildenhall in 1144. The runways have been regarded as catapult emplacements, and a mass of material projecting into the bottom of the moat at the west end (I on PLAN) was thought to be an assault bridge.

This view is untenable since the runways form very improbable emplacements for siege-engines. In this connexion it is well to recall the famous siege earthworks surrounding Great Berkhamstead castle. These are the relics of the siege of 1216 when the place was taken by Louis of France, its fall being greatly hastened by the use of seven trebuchets whose emplacements are still recognizable on the site. These have a totally different character from the Burwell runways and are large platforms.⁴

It is fortunate that any further speculation about the Burwell site has been set at rest by the published results of excavation carried out on the site in 1935 by Mr T. C. Lethbridge, F.S.A., with a view to testing the siege works theory and making a general examination of the site.⁵ He has been able to show conclusively that not only are the dumps and runways definitely what they appear to be, but also that a considerable amount of chalk has not been moved from the moat along the north and south sides of the central island, while the 'assault bridge' is nothing more than another mass of undug chalk along the outer side of the moat. The curtain-wall had been built round the east and southeast sides of the site along with a small keep or gatehouse and two garderobes (K on PLAN), but has not been carried right round, so that the site must have been virtually indefensible when Geoffrey attacked it. After his

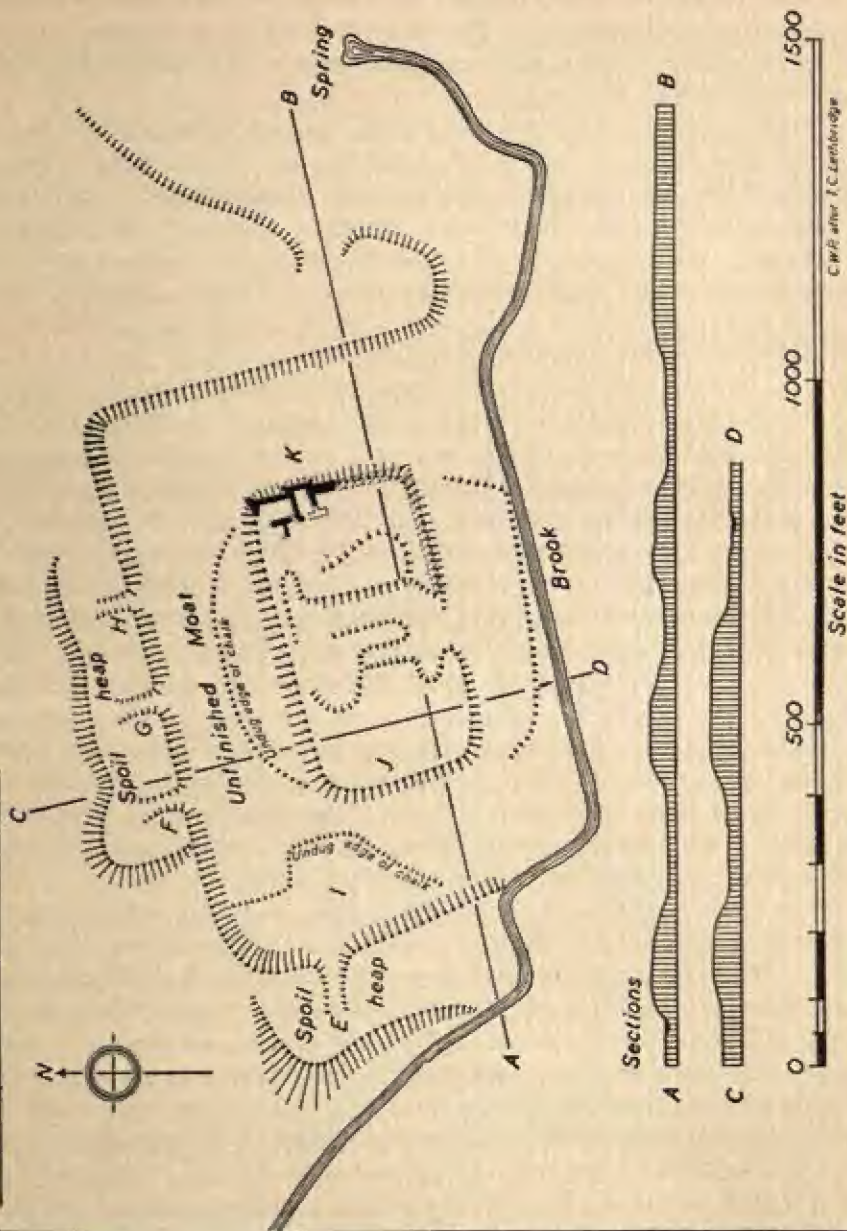
¹ Chronicle of Ramsey, 331.

² Chronicle of Gervase, 128.

⁴ *Antiquaries Journal*, 1923, III, 37-48.

⁵ Proceedings of the Cambridge Antiquarian Society, 1936, XXXVI, 122-33.

BURWELL CASTLE



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death the situation which made the castle necessary disappeared and the work was abandoned. The site has so little impressed itself as that of a castle on the neighbourhood that it has never had any other name than Spring Close.

Points of minor interest are that the western end of the castle 'island' has been the site of a Romano-British building (J on PLAN) and that in 1246 a private chapel was set up somewhere on the site by the abbot of Ramsey. Excavation failed to show the exact position of the chapel, but fragments of painted glass and various architectural fragments attest its former existence.

C. W. PHILLIPS.

A ROMAN BOAT (PLATE IV)

The Romans seem to have appreciated French wine, and to have taken it to their ports by river. Monuments showing boats laden with barrels exist in Avignon museum and no doubt in many others. The example reproduced (PLATE IV) depicts the better of the two such monuments in the Landesmuseum at Trier. It will be noticed that there are twenty-two oars on the port side, and six rowers, so that obviously there must have been invisible lower tiers of oarsmen to wield them, unless the artist has sacrificed veracity to art. The coxwain is apparently giving the time by clapping his hands, and the helmsman is steering with his oar on the port instead of the usual starboard side. This may be, again, for artistic reasons, or because there was an oar on both sides, a usual device. On the bow there is the eye frequently seen on Mediterranean boats, ancient and modern, and also on the Bronze Age boat depicted on the Caergwle bowl; but the most interesting point is the animal heads at bow and stern. In front is an authentic dragon and behind is a Roman wolf.

The lower Rhine was, of course, the boundary where intercourse between the northern barbaric tribes and the Romans was most general, and the finds from the Danish bogs show what a hybrid civilization—half Roman, half barbarian—had grown up beyond the river by the third and fourth centuries A.D. The Nydam boats have no figure-heads as they remain today, but is it possible that the northern peoples may have acquired from Rome the idea of dragon heads to their boats? It must be noted that the Scandinavian boats of Bronze Age times seem to have mounted some type of figure-head and tail, while an Egyptian boat of 2500 B.C. has the end carved into a sort of snake, so that it is possible that it is no matter for diffusionist theories, but a habit natural to boat-builders.

D. P. DOBSON.

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ARCHAEOLOGY IN THE GOLD COAST

The building of roads and railways, mining and dredging operations, and agriculture have at various times produced as bye-products a considerable amount of archaeological material in the Gold Coast. Large unpublished collections, made by the Directors of the Geological Survey, are deposited at the Survey's offices in London and the Gold Coast. These activities have shown the existence of Stone Age cultures of both palaeolithic and neolithic facies, the latter characterized by distinctive faceted celts and apparently overlapping the local Iron Age without the intervention of copper or bronze. Some of the evidence has been published in the Annual Reports of the Geological Survey, in the *Gold Coast Review* (now unfortunately defunct), largely owing to the efforts of Capt. R. P. Wild, M.C., in the *Journal of the African Society*,¹ and in R. S. Rattray's *Ashanti* (ch. 26) and *Religion and Art in Ashanti* (ch. 27).

But a new chapter in the archaeological history of the Colony was opened in 1931 by Dr N. R. Junner, the present Director of the Geological Survey, when he found and surveyed certain ancient trench systems between Manso and Akwatia, and ancient mounds at Adukrom.

Some of the trenches enclose rising ground. They vary in depth from a few feet to 15 feet, and were originally deeper. Pottery was excavated at a depth of 9½ feet from the present ground surface at the bottom of one of the trenches in certain cases. Other ancient trenches were found in 1931-32 and in 1935, and wheel and compass surveys made of the trenches near Manso and Abodum. One of these is 1 mile, and another, having two inner trenches, 1.3 miles in circumference. A third, north of Abodum, has a circumference of 1.4 miles, with two 'annexes' each about ½ mile long (see FIGS. 1-3). Where deposition of silt is absent they are in places 20 feet deep with a maximum width of 29 feet at the top. Within the Abodum entrenchments 'there is abundant evidence of former occupation in the form of coarse pottery and stone implements', writes Dr Junner, and adds 'One would like to see some of these sites excavated with a view to determining their age; unfortunately the Geological Survey cannot afford time for this work. It is now believed that these trench-systems represent ancient fortified encampments similar to those found in Great Britain and elsewhere' (Annual Report of the Gold Coast Geological Survey, 1931-32).

In 1934-35 systematic excavation of some of these trenches was

¹ H. Balfour, 'Notes on a Collection of Stone Implements from Ejura, Ashanti', *J.A.S.*, 1912, XII.

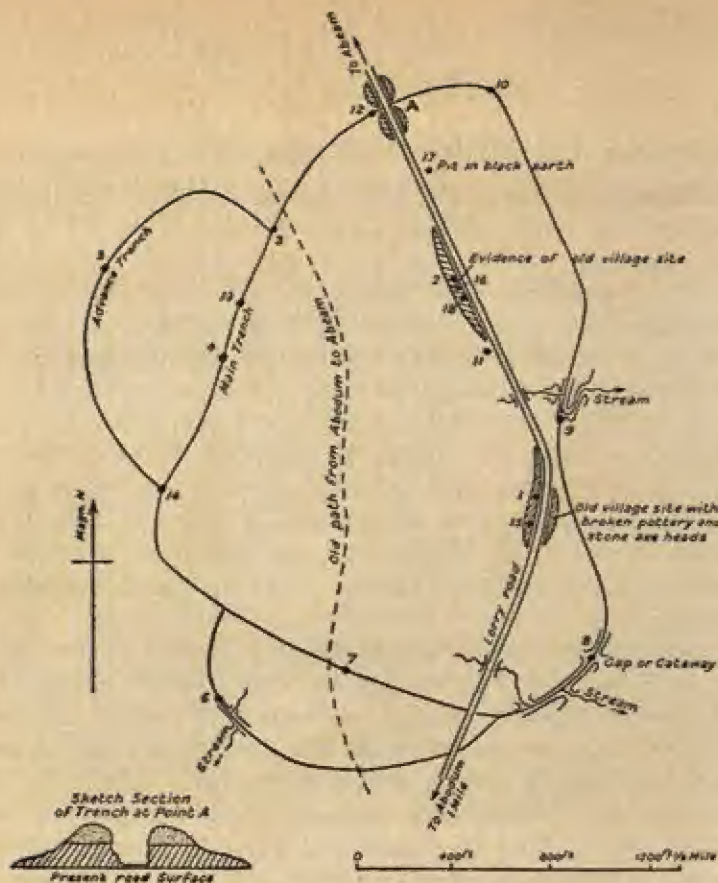


FIG. 1. ENTRENCHMENT NEAR ABODUM, GOLD COAST

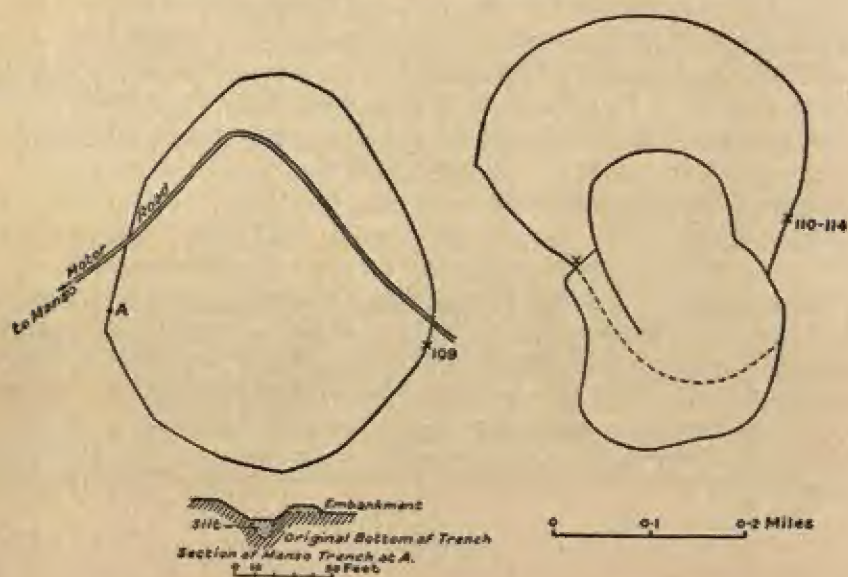


FIG. 2. TRENCH ONE MILE EAST OF MANSO, GOLD COAST

FIG. 3. TRENCHES BETWEEN TIRIPI AND ASUA BENA STREAMS, NE. OF MANSO

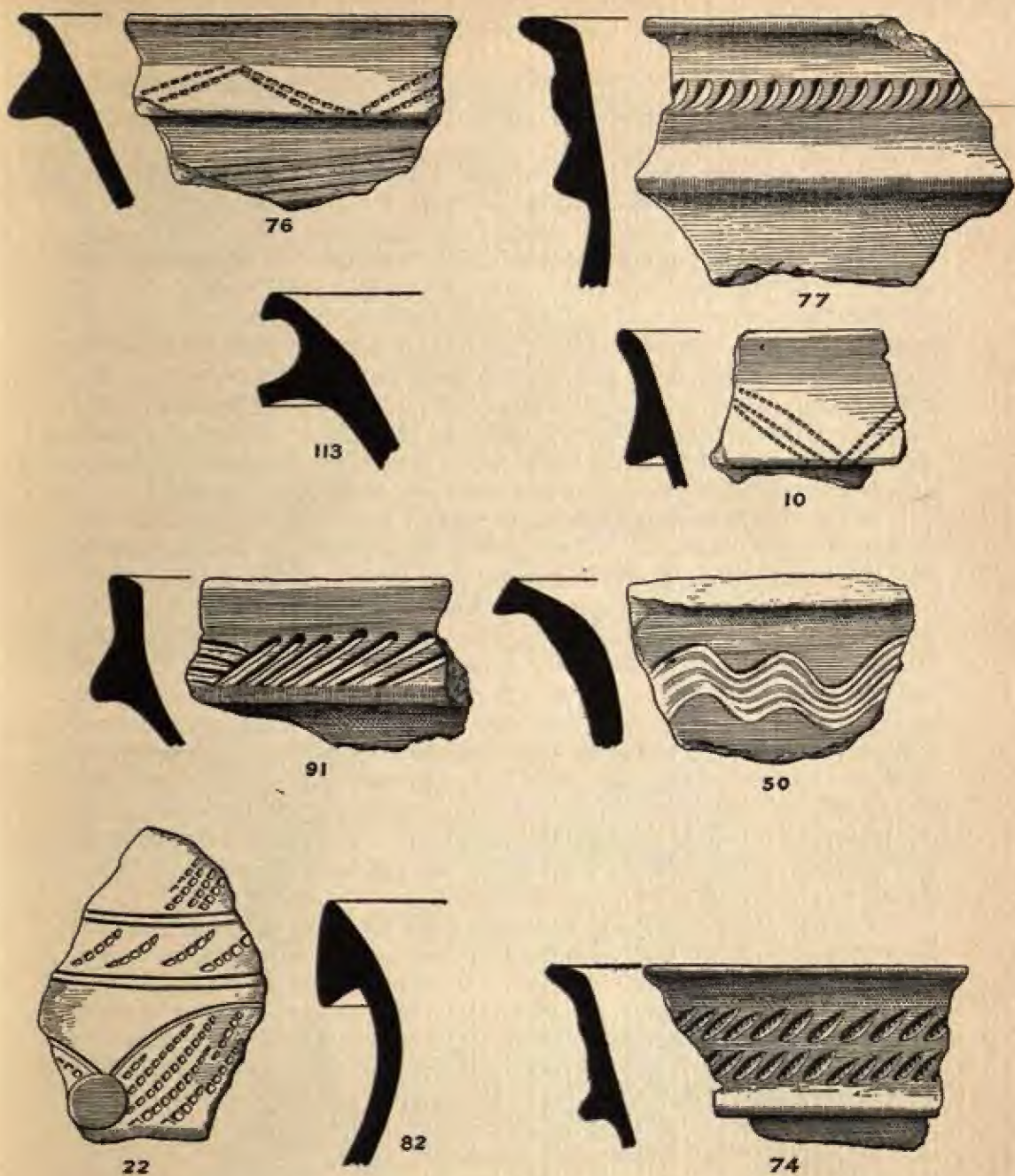


FIG. 4. POTSDERDS FROM ABODUM, GOLD COAST. (No. 113 from Databe). (British Museum)

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undertaken, in particular at the Abodum site, where 18 pits were sunk, as shown in FIG. 1 (Annual Report of the Gold Coast Geological Survey, 1934-35).

The drawings (FIGS. 4-5) prepared by Mr C. O. Waterhouse, illustrate a selection of the potsherds excavated at Abodum (excepting no. 113, from Batabe), all of which have been presented to the Sub-Department of Ethnography of the British Museum. (The numbers are those of the Museum Register, under the serial number 1935. 12-11).

Dr Junner writes 'all the material was collected from red clay, silt and black earth. The last named occurs on the site of old settlements enclosed by the trenches, and yielded more pottery fragments than the silt and clay, which have been washed into the trenches since they were formed. The trenches vary greatly in their state of preservation. Some are almost completely silted up and contain old trees in them; others are practically free from old trees and are well preserved'.

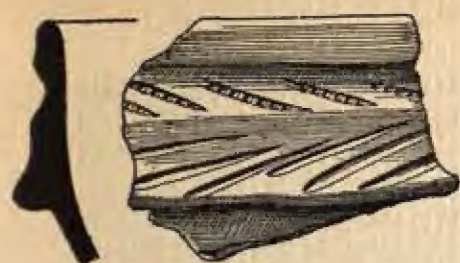
Although the material was removed in 1-foot layers no stratification of deposits was observed. The quantity of the material and the variety of the ornamentation, however, suggest a prolonged period of occupation.

No complete pot was recovered, nor even enough sherds from any one pot to permit of its reconstruction. But the curvature of the rims suggests that much of the ware consisted of wide-mouthed cooking dishes, with a diameter of about 9 inches at the mouth. All the pottery appears to be hand-made, from clay of varying texture, the coarsest containing large pieces of quartz grit and some staurolite. It is generally well and evenly fired. Ornament is impressed or stamped (nos. 10, 22, 43, 56, 74, 76), incised (22, 35, 91), or 'combed' (50), with occasional ornamental modelling of rims and flanges (67) and applied details such as bosses (22, 68). Roulette-marking and painting are absent, and no handles, pedestals or lids were found.

Perhaps the most distinctive feature of the pottery is the frequent occurrence of prominent flanges at or below the rim (76, 77, 113). Some of the lips are much undercut, forming a kind of collar (10, 82).

The different styles do not fall into any well-defined groups corresponding to excavation levels; but certain types are commoner at the lower levels (*e.g.*, the 'combed' ware), while others—in particular a fine quality bronze-hued ware containing particles of mica—predominate at the top. Some disturbance of the deposits is indicated by the finding of two fragments of one pot at different levels.

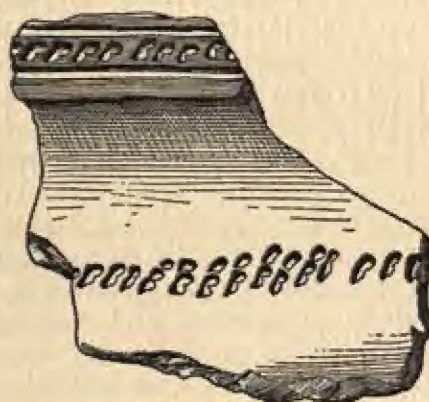
Two polished stone celts were found with the top level sherds in pits 10 and 16, while a fragment of a tuyère encrusted with iron slag



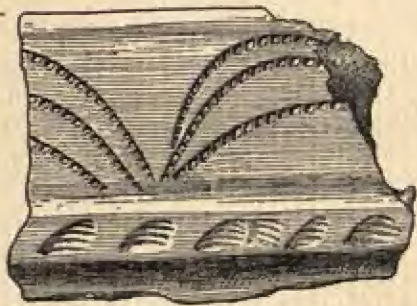
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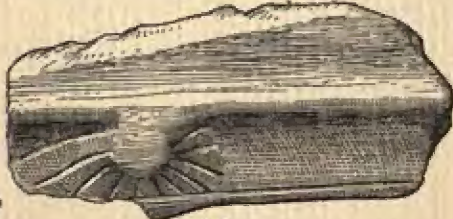
67



56



43



68

FIG. 3. POTSDERDS FROM ABODUM, GOLD COAST. (British Museum)

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underlay one of the celts. Unless this is due to disturbance, one must infer that stone celts continued in use after iron smelting had begun—an inference which is confirmed by similar associated finds at other Gold Coast sites, as noted by both Rattray and Wild.²

If the excavations may be taken as a fair sampling of the site the negative evidence is significant. The complete absence of any European trade objects, such as beads, suggests an antiquity of at least three or four centuries. The local inhabitants disclaim any knowledge of the origin or purpose of the trenches, and state that they existed before their ancestors came to the country (three or four centuries ago). The pottery is quite distinct in form and ornament from modern Ashanti ware. The weathered condition of many of the sherds, and the silting up of trenches also suggest some age. Everything in fact points to the sites having been deserted by the 16th century, if not earlier, and the accumulation of material suggests a lengthy period of occupation previous to this.

It is much to be hoped that further systematic excavation will soon be undertaken in the Gold Coast. It is clear that there is here a large, interesting and almost untouched field awaiting the spade of the trained archaeologist. Aerial photography might prove a valuable help, not only in bringing out details of known sites invisible on the ground, but also in revealing new and unsuspected sites. Even where these are overgrown the character of the vegetation might be expected to betray them, as has been so successfully demonstrated in Great Britain.

LIST OF POTSDHERDS ILLUSTRATED (all from Abodum, except 113, from Batabe)

Number	Pit	Depth
10, Grey, micaceous	4	3-4 ft.
22, Terracotta	8	3-4 ft.
35, "	13	5-6 ft.
43, "	13	4-5 ft.
50, "	16	1-2 ft.
56, "	16	2-3 ft.
67, "	16	4-5 ft.
68, "	16	4-5 ft.
74, Dark grey	16	2-3 ft.
76, 'Bronze' micaceous.	Near 16	1-2 ft.
77, "	Near 16	1-2 ft.
82, Grey, undecorated.	Near 16	2-3 ft.
91, 'Bronze' micaceous.	18	2-3 ft.
113, Grey, undecorated.	Batabe	3 ft.

H. J. BRAUNHOLTZ.

² cf. R. S. Rattray, *Ashanti*, ch. 26, and R. P. Wild, *The Gold Coast Review*, 1927, III, no. 2, 'Stone Artifacts of the Gold Coast and Ashanti', p. 174.

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PROTECTION AGAINST DEMONS (PLATE V)

Professor HANS HELFRITZ writes with reference to the custom of fixing horns to buildings, in Mohammedan countries, to drive away demons.

'I have made several journeys in South Arabia, and was also struck with this custom. The two photos which I enclose come from the country between Hadramaut and Yemen. One is from Shabwah, the old Sabota; the other from the Bedouin village of Mafut in Wadi Irma, near Shabwah, which is inhabited by Bedouins of the tribe of al Bureik. I visited these places last Spring. The horns of the ibex were seen on a little mosque in Shabwah and on Bedouin graves, Mafut. Ibex horns fixed to the corners of houses were also found near Dar el Qoz in West Hadramaut on the road from Terim to Qabr Hud. Here this custom has a religious origin, possibly handed down from Sabaeen times. The ibex was the sacred animal of a deity and therefore its symbol; its relief is often seen on old Sabaeen altars. Most likely it was the sign of the Babylonian moon god Sin, whose culture also penetrated into South Arabia. The Bedouins today use the horns for defence against evil spirits'.

BASSIANAE, YUGOSLAVIA (PLATE VI)

During Roman times, the Yugoslav portion of the Danube Basin contained many important towns. Travelling from west to east, there were Mursa (Osijek), Cibalae (Vinkovci), Sirmium (Sremska Mitrovica), Singidunum (Belgrade), Viminacium (Kostalac) and a whole series of smaller and less-known places. The reason for this exceptional number of cities was undoubtedly the natural wealth and position of the district, on the boundaries of the three provinces of Pannonia, Moesia and Dalmatia. It was through this district that the main road from Italy *via Aquileja* ran, and here it divided into the main routes to Dacia and southward to Thrace and Macedonia and thence into Greece and Asia Minor. Some of these towns were provincial capitals, such as Sirmium, the chief city of Pannonia inferior, and Viminacium for Moesia superior. Many of them played a very important rôle in the defence of the Empire from the attacks of the northern barbarians who were frequently concentrated on this area. On the main road linking Sirmium with Singidunum lay Bassianae. According to the Geography of Ptolemy, the Peutinger Table and half a dozen other classical sources, this site has been identified with the ruins known as Gradina near Donji (Lower) Petrovci in the district of Srem between Belgrade and

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Sremska Mitrovica. This fact has been further confirmed by the discovery of various stone monuments near Gradina inscribed with the name of Bassianae, as well as by the evidence of several later travellers who describe Gradina near Petrovac under this name. The identification is thus founded both on history and tradition.

Bassianae, the present Gradina, lies immediately to the north of the village of Petrovci and is identifiable by a marked rise. Its superficial shape is that of an irregular pentagon. It is defended on the south by the canal of Jarčina, of which the section leading from the village is Roman in origin. On the west is the little stream of the Rečica which flows into the Jarčina immediately below the south-western wall of the city and also served as a means of defence. The eastern and northern walls seem to have been defended by a trench. Looked at from the plain the site of Gradina is higher on the western face, whereas the eastern face slopes gently away into the plain. It seems that here were the extra-mural suburbs, only a little raised above the plain. Various indications seem to prove that the Bassianae cemetery is located under the present village. The Gradina pentagon measures from south to north about 550 metres and from east to west something over 350 metres. At the edges of the meadow and scattered over its entire area are holes, which are probably connected in some way with the building plan. Only towards the north-eastern corner, at the village graveyard, has this impression of an old ruined site been destroyed.

The first excavations at Bassianae were carried out as far back as 1882 by the archaeologist S. Ljubić. But, owing to the inefficient methods of excavation at that time and the almost total destruction of the site, he discovered practically nothing of the buildings. Finally, disillusioned, he abandoned the site. He stated that the ruins of Roman buildings near the village of Dobrinč were those of Bassianae, these being far more evident to the naked eye, and looked on Gradina as a sort of temporary Roman camp erected before Sirmium and badly built owing to the short time it was inhabited. The only important statement made by him concerning his work was that the holes on the surface were the foundations of buildings. But he was only able to do this to a very limited extent as they are not always visible on the ground and there were at that time no air-photographs. He was then following the local village tradition, according to which the holes on the surface at Gradina served for the excavation and collection of building material, stones and brick which are rarely to be found in the plain of Srem.

The renewal of the excavations at Bassianae is due to the initiative

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of Professor St. Stanojević, President of the Historical Society of Novi Sad, a fine national historian whose interest is not limited only to archives but extends also to archaeological discovery. Despite Ljubić's scepticism he was convinced that Gradina was the site of Bassianae. The work was organized in the most up-to-date manner. The ground was photographed from the air. All that the human eye was unable to grasp in its entirety was now revealed by the air-photos. The excavated holes show on the photograph (PLATE VI) as dark marks. The excavation of the town walls revealed an accurate plan of the foundations, and the gates, streets, public buildings, churches and small private buildings were indicated. In 1935 the excavations were based upon the information given by means of the air-photographs, and Ljubić's scepticism proved wrong. Petrovačka Gradina was certainly Bassianae. The extent of the discoveries confirmed this. It is true that the site has the general appearance of a camp but this was undoubtedly due to the disturbed state of the country in late classical times, when Bassianae filled an important military rôle and received its final and definite form. Besides that the size of the place precludes any possibility of its having been merely a camp. This unique view of Bassianae, and the possibility of reconstructing the site by the help of air-photographs, were undoubtedly due to the fact that the area in question is pasture land so that there was no ploughing over the surface, which would certainly have destroyed the evidence seen.

MIODRAG GRBIĆ, Conservator,
Museum of Prince Paul, Belgrade.

CATERN'S GRAVE, NEAR BASINGSTOKE (PLATE VII)

The accompanying air-photograph, taken in the ordinary course of practice by the R.A.F. (and reproduced by permission of the Controller, H.M. Stationery Office, and the Director General, Ordnance Survey), reveals three important new sites.

(1) Remains of a double square, recalling that published already (ANTIQUITY, 1933, VII, p. 296, PLATE II) near Womenswold, Kent.

(2) A group of enclosures, mostly rectangular, with a pair of lines leading to the Roman road, on the right hand margin of the photograph.

(3) A group of dark splodges, possibly representing habitations or pits.

These lie beside the Roman road between Winchester and Silchester at the point where it is crossed by the Basingstoke-Kingsclere-Newbury road. The actual cross-roads is seen on the photograph

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close to the double rectangle. The site has always been well-known as a promising one, although up to the present nothing definite has been discovered there. On Ogilby's map of 1672 the cross-roads is called Catern's Grave. On Colt Hoare's map 'Ancient Wilts', Roman Æra, vol. II, 1819, plate opposite p. 64, a semi-circular bank is marked on Rooks Down, but field-work has failed to locate any trace of this and the whole area has been under intensive cultivation for some time, though it is now under grass. It is recorded in the *Gentleman's Magazine* for 1831, part I, 351, and *Gent. Mag. Lib.: Archaeology*, II, 177, that several skeletons were found on Rooks Down while making the new road, and in the same account the adjacent camp at Winklebury, which falls just outside the photograph, is also referred to under the name Bury Bank or Winklow's Barrow.

It is hardly necessary to describe the remains visible on the photograph in any detail. They appear to be those of a farm, but of what period is quite uncertain. Excavation would no doubt determine this, and we hope that the publication of this photograph, which will be seen in the Basingstoke Museum, may lead to some such work being undertaken.

O.G.S.C.

AN ESSAY ON EGYPT

A prize of £50 is offered for an essay in English on some archaeological or ethnographical (not mainly linguistic or literary) subject connected with Prehistoric or Pharaonic Egypt.

The essay should show original research. The words 'archaeological' and 'ethnographical' are to be interpreted in the widest sense. The subject may be selected by the candidate, and the essay should be illustrated by as much comparative matter as possible from other lands, whether ancient or modern. The utmost use should be made of photographs and drawings.

The prize will be awarded only if the work is of sufficiently high standard to warrant it.

The candidate may be of either sex and any age. Essays (*with a title, but no signature*) must be typed and sent, with *signed* letter, before 31 December, 1937, to Mr J. H. Hay, Solicitor, 29 Bedford Square, London, W.C. 1, who will give each essay a number and forward it to the adjudicators. Other correspondence should be addressed to Mr G. A. Wainwright, 26 Elm Park Gardens, London, S.W. 10.

Mr K. de B. Codrington, Dr Margaret A. Murray, and Mr G. A. Wainwright have kindly consented to act as adjudicators.

Varia

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

It is not generally known that the first recorded opening of a Long Barrow was carried out by St. Patrick. The passage in his Life* is as follows, translated :—‘ Once, as Patrick was travelling in the plains of the son of Erc (immaigib maicc Ercae), namely in Dichuil and Erchuil, he beheld therein a huge grave, to wit, a hundred and twenty feet in length. The brethren asking *ut suscitaretur*, Patrick then brought to life the dead man who was biding in the grave, and asked tidings of him, namely, when and how [he got there], and of what race and of what name he was. He answered Patrick, saying : “ I am Cass, the son of Glass ; and I was the swineherd of Lugar, King of Imata, and Macc Con’s soldiery slew me in the reign of Coirpre Niafer. A hundred years have I been here today ”. Patrick baptized him, and he went again into his grave ’.



In connexion with the paper on Reculver by Mr R. F. Jessup in the June (pp. 179-94) number of ANTIQUITY, we are pleased to learn that the Herne Bay Urban District Council has included amongst the lands to be acquired under a proposed Compulsory Purchase Order all the portions of the Roman fort, together with the site of the ditch, which are not as yet in the hands of the Crown. After acquisition the Council proposes to hand over this property to the Commissioners of His Majesty’s Office of Works for maintenance as an Ancient Monument.



The rarity of tombs of the Old Stone Age is known, and the discovery which M. R. Blanchard has just made is therefore all the more welcome. The tomb of the round-headed young woman brought to light at

* *The Tripartite Life of St. Patrick*, Rolls Edition, part 1, 1887, p. 123.

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Saint-Germain-la-Rivière (Gironde) was formed of great slabs of stones placed around and above the skeleton, which lay on its left side in a contracted position. In the earth, which was strongly impregnated with ochre, M. Blanchard recovered a fine collection of grave-goods—bone and stone implements, a necklace of perforated and engraved teeth, and the remains of a belt ornamented with shells. More remarkable still are the offerings which accompanied the remains of the young person and which give to the Magdalenian tomb of St. Germain a quite special character. All round the skeleton there had been systematically arranged reindeer horns, skulls and jaws of horses, and slaughtered bisons, as if some ritual ceremony had been performed there. (*Rev. Arch.* 6 Ser. VI, Oct.-Dec. 1935, 171-2).



In the course of excavations at Arlon 15 Belgo-Roman tombs of the fourth century have been unearthed, five of them intact and fully furnished. (*The Times*, 19 September).



A new fossil anthropoid skull has been found in a cave at Sterkfontein near Krugersdorp, Transvaal. The discovery was made by Mr G. W. Barlow, Manager of the Lime-works, who communicated it to Dr Broom. It is fragmentary but there are sufficient remains to enable certain facts to be stated. In some respects it resembles the Taungs skull, though it is regarded as 'most probably Upper Pleistocene' in date, whereas Taungs is Middle or Lower Pleistocene. Dr Broom concludes:—'This discovery shows that we had in South Africa during Pleistocene times large non-forest living anthropoids—not very closely allied to either the chimpanzee or the gorilla but showing distinct relationships to the Miocene and especially to the Pliocene species of *Dryopithecus*. They also show a number of typical human characters not met with in any of the living anthropoids'. (*Nature and Illus. Lond. News*, 19 September).



In June 1935 a fossilized human occipital bone was found *in situ* at a depth of 24 feet below the surface, in the middle gravels of the Thames 100-ft. terrace at Swanscombe, Kent, in association with

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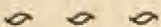
implements of the Acheulean culture-phase. In March 1936, at the same depth, and in the same seam of gravel, the left parietal bone of the same skull was discovered, and this was witnessed and photographed while still embedded in the gravels, by an independent observer. Both bones are in a remarkable state of preservation. It is claimed that 'the differences between the actual anatomical features [of this and the Piltdown skull] overwhelmingly favours the view that the geological horizon of Piltdown should be considered as later than that of the Swanscombe horizon in the middle gravels of the 100-ft. terrace' (Alvan T. Marston, the discoverer, in *Nature*, 1 August, pp. 200-1). The same discovery is also discussed by the same writer in the *British Dental Journal*, 15 August 1936, where it is claimed that 'the Piltdown canine tooth as well as the Piltdown jaw-fragment should be dissociated from the Piltdown human remains, and relegated to the section of fossil apes'.



The upper part of a human skull 'said to date back to the last phase of the glacial period' has been found near the Moscow-Volga canal, on the banks of the Skhodnaga river. It was found at a depth of 12 feet in an alluvial deposit of quaternary age. It is described as having protruding brow-ridges and a very low forehead, thus resembling skulls of the Neanderthal type. (*Evening Standard*, 18 August).



The Cumberland and Westmorland Antiquarian and Archaeological Society is to excavate a remarkable circular earthwork called King Arthur's Round Table. (*Cumberland and Westmorland Herald*, 19 September). It is situated near Eamont Bridge, Penrith; its nearest analogue is Gorsey Bigbury on the Mendips, which excavations by the Bristol University Spelaeological Society have shown to belong to the Beaker Period (Early Bronze Age). The Cumberland Society has recently honoured the founder of *ANTIQUITY* by electing him an Honorary Member.



Portions of a round-bottomed neolithic bowl have been found on a new road near Haddon Hill, Holdenhurst, near Bournemouth. One is tempted to ask whether this is merely a chance find—or rather a

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chance *loss*, originally—or whether it indicates the settlement-site of the people who made the Long Barrow not far away, which was excavated last winter ? (*Bournemouth Daily Echo*, 23 September).



Professor Henri Frankfort, Field Director of the Iraq Expedition of the University of Chicago's Oriental Institute, has reported on the last season's (1935-6) work of that expedition. At Tell Agrab Mr Seton Lloyd has unearthed two fragments of a cylindrical vase of green steatite. On one of these there is represented a figure 'seated before a building with a curious roof, carried on arches or forked poles, enclosing a large humped bull in front of a manger'. The humped bull was not indigenous in Mesopotamia, nor is any scene of animal-worship known from there. 'On the seal-stones from the Indus valley it is the most common motive of all, and the animal is generally a humped bull in front of a manger'. This rendering of an Indian cult in a Mesopotamian setting speaks of more than mere intermittent trade intercourse. It is suggested that there was a 'cultural continuum', that is, a belt of permanently inhabited country, extending from Mesopotamia to the borders of India; and the existence of such a belt has, in fact, been proved by Sir Aurel Stein's discoveries. (*The Times*, 1 August).



The intervening region is now too arid to support the large population suggested by the finds there, and we have been waiting for someone to call attention to the far-reaching implications of Sir Aurel Stein's discoveries. Thus yet once again is demonstrated the paramount necessity of reconstructing the natural environment of prehistoric man, whether the decisive factor be rainfall (as here) or soil plus vegetation (as in this country).



More than 20 years ago the writer pointed out that the existence of an ice-sheet in Northern Europe implied a climate in the Sahara that would have made it a hunter's paradise. In the Old Stone Age it *must*, therefore, have been admirably adapted to the needs of the men of those times. Time has proved the correctness of that view. When it was first put forward, remains of men of the Old Stone Age were almost unknown in the Sahara; now (as we hope to show our

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readers shortly) they are found to be abundant there. The Sahara may then have been, relatively, the most densely inhabited region in the world.



Alabaster ornaments, fragments of frescoes, and coins dating from the second and third centuries have been discovered during excavations in the city of Termez, in Uzbekistan, by an archaeological expedition sent out by the Hermitage of Leningrad and the Uzbek Committee for the Preservation of Ancient Monuments. One of the halls of a twelfth-century palace was completely excavated. (*The Times*, 17 August).



Interesting discoveries during excavation on the Megalithic site of Burzahom, near Srinagar in Kashmir, are described in the *Miscellanea* of the American Philosophical Society. Numerous polished stone implements and examples of 'black burnished' ceramic ware were found at a depth of 11 ft. from ground level below a brick kitchen floor containing clay hearths. The pottery is similar to the 'band ceramic' of Central Europe and regarded as being late Neolithic of approximately 3500-4000 B.C. It is significant that this 'black burnished' pottery is identical with the black ware found in Mohenjodaro and not dissimilar to the black ware found mixed with the painted pottery of the earlier Chalcolithic periods of Baluchistan and Persia. (*Discovery*, September 1936).



A magnificent hoard of silver and other objects, dated at about 1936 B.C., has been found at Toud (the ancient Tupnium) on the east bank of the Nile, about 20 miles south of Luxor. They were found in four bronze chests during the excavations of the Institut français d'Archéologie Orientale, directed by Monsieur P. Jouguet. It is claimed that they are of Asiatic origin, and the discovery of cylinders with cuneiform writing certainly corroborates this claim. (*Illus. London News*, 18 April, pp. 682-3).



In the time of Queen Elizabeth, the civilization of Europe could boast of little that was much beyond the material achievements of the old civilizations of the Near East (Dr H. S. Harrison, Horniman Museum, in *Nature*, 1 August 1936, p. 189).

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The (Roman) Jewry Wall, Leicester. 'Leicester cannot afford to waste money for such an object as keeping these miserable remains. Let us see a beautiful building, which will bring credit and a profit to our city. CITIZEN'. (*Leicester Evening Mail*, 8 August, 1936).



'What a find it is for Leicester. It would be a thousand pities if this ancient spot were not preserved as it will undoubtedly be one of the sights of Leicester in the days to come. I hope that the Voice of Leicester will make itself heard for the preservation of the site. VIGILANT. (*Leicester Daily Mercury*, 1 August 1936).



The French Academy consists of 40 members, known as 'The Immortals' because they seem never to die, and for the same reason perhaps members of the executive are called 'Secrétaires perpétuels'. All are obliged to possess that institution's green full-dress uniform and sword. The uniform costs about £60 and the sword, which is of course quite harmless, about £150. It has been suggested that the State might well provide Academicians with their swords; but the question arises, are they really necessary? Would it not be more in keeping with the times to provide them with a rifle or a really efficient gas-mask, and to replace the expensive uniform by dungarees? (*Sunday Times*, 8 March 1936).



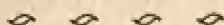
Men of action have always been more susceptible to the wiles of the wild men than are mere thinkers; and dictators seem particularly gullible. The ruler of Turkey appears to have been caught by some strange swindle called the 'Sun-Language theory' according to which every word in every language may be reduced to a formula based on the sounds used by primitive man, when he began to express his feelings in speech. It has never been revealed who was the originator of the theory, but it is clear that Kamal Atatürk has adopted it, and a number of the most learned scholars in Turkey have been at pains to master and expound its details'. (*The Times*, 9 September).



It is hardly necessary to point out that science knows nothing whatsoever of these 'sounds used by primitive man', and consequently that the whole of the theory must be a tissue of speculation.

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Yaffle, who is always entertaining, is 'at work on a series of historic films, which show our island story as it ought to be'. The first one will deal with the Romans in Britain and will be called 'Boadicea', with the sub-title 'Queen Who Sacrificed A Kingdom For Love'. Yaffle has a theory that the Romans never conquered Britain at all, but that 'they were invited over here because they were good at building and road-making on condition that as soon as they had carried out a certain number of public works, back they went. And back they did go as every school-boy knows . . . Historians are always telling us what buildings and roads the Romans made, but what they don't tell us is that, although the Romans did the work, there was always a British foreman'. (*Reynolds News*, 13 September). Personally I should imagine that, to judge by modern analogies, the British and the native auxiliaries did all the donkey-work as far as the roads were concerned.



Something rather like this did actually occur later on when Benedict Biscop (628?-690), who, is described as a 'Noble Englishman', obtained from Gaul stone-masons (*cementarii*) and glass-makers, trained in the Roman tradition, to help in building the monastery of Wearmouth in 674.



Professor C. van Riet Lowe, the writer of the account of the excavations at Mapungubwe in the September number of *ANTIQUITY*, should have been described as of the University of the Witwatersrand, where he is Professor of Archaeology.

Archaeological Photography

The remarks in the September number of *ANTIQUITY* (pp. 351-2) on photographing archaeological subjects seem to have been much read to judge from the number of letters received, and we print some of the comments.

Dom ETHELBERT HORNE writes :—

' I am interested in your note on " Archaeological Photography ". I wonder if I may venture to describe a plan of mine for photographing down on the ground, without the distortion which is the usual consequence ?

' When I was excavating the Anglo-Saxon cemetery at Camerton near Bath, at first I photographed the skeletons with a tripod camera, from one end of the grave. This produced the distortion you will see shown on PLATE I, A. I then made a pair of ash tripods, 6 feet high. The head in which the legs met, had an iron pin 3 inches high, standing up in it. I placed one of these tripods on either side of a grave, and a wooden bar, 6 feet long, with a hole in each end of it, dropped on the two iron pins at the top of the tripods. The camera was fastened to a carrier that ran on this cross-bar.

' By using a plumb-line from the lens to the skeleton, the camera can be placed in the right position, and by measuring the distance between the lens and the skeleton with a tape, the correct focus can be obtained.

' The advantage of this vertical method can be seen in the illustration (PLATE I, B).

' When the sun shines directly into a grave I have often found that some part of it was in such deep shadow that a photograph was impossible. A large piece of thin canvas, held by a couple of helpers, can be so placed as to cut off direct sunlight, and produce a nice diffused light down in the hole '.

Mr L. FULLBROOK-LEGGATT writes :—

' With regard to the two photographs used to illustrate the difference of results with the sun in and out, I am doubtful whether the comparison made is fair. In the first instance, it is obvious that the two pictures were taken with different apertures from different angles—the latter slight, it is true, but sufficient to affect the results

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materially. In the second, the degree of excellence of result, whether in sun or shade, depends on the film used, and the type of film used depends, to a great extent, on the speed and lenses of particular cameras. I have a camera somewhat similar to the Editor's. Mine takes up to $1/300$ second, and, after using panatomic film for a time, I have since found that hyper-sensitive is much faster and gives equally good detail. It enables me to do both outdoor and indoor work in good or poor natural light, to take in artificial light or in actual darkness. Furthermore, being a very fine grain, it enables one to make a very big degree of enlargement if necessary.

'Whenever possible, I take with a full aperture, and, however fast the speed at which I am taking, I prefer to use a stand. Even when taking at $1/100$ second without one, there can be slight movement which will detract from true sharpness of outline and detail. A lens hood is also very desirable inasmuch as it concentrates on the lens the essential light rays and shuts out those lateral rays which tend to spoil a true image.

'The Editor very rightly points out that one of the most important essentials of a good photograph is the light, but he does not give the best means of gauging this—an exposure meter. There are a number of types of these, some of which require a certain amount of calculation to be done. From personal experience, I favour the moving coil type, for with this one has only to know the speed of the film one is using, and look up the appropriate scale on the meter, to obtain the correct reading for aperture and exposure. It is only by the use of such a meter that one realizes how light varies from minute to minute even on the finest day. They are not cheap to buy, but expenditure on them is a very sound economy since, if they are properly used, any failure can, generally speaking, be the result of carelessness or lack of understanding only.

'I am not sure whether the Editor intends to imply that a camera of the reflex type he uses is adequate for the requirements of Archaeological Photography. Granted that its range is wide and can be made wider by the use of magnifying lenses for 'close-up' objects, I consider that a camera with a wide angle lens is also needed, and, possibly, a panorama camera.

'I would make two final suggestions. Under-exposure is fatal. Over-exposure with modern films allows a considerable margin of safety. Examine negatives under a magnifying glass to decide whether they merit enlargement'.

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Dr GRAHAME CLARK writes :—

' I have just read your hints on photography with much profit and interest. There is one sentence on which I might be allowed to comment. " It is . . . no good abusing the stone if it gives you nothing on a rainy day, you must go again ". I have found that where there is a very worn engraving (this would apply to an inscription as well I imagine) a rain-washed surface with the water still glistening can give much the same effect as a light applied obliquely in the dark, but it has the advantage of not being " hard ". The proof is in the photograph (PLATE II) which I send—the engraving was so difficult to see that we could not chalk it by daylight, yet on a rainy day it was clear looked at a little obliquely. The difficulty of the dullness of the day was partly offset by the glistening of the wet stone and partly by making a longish exposure. I am informed that the Bronze Age rock-engravings of Scotland are well-known to show up better under similar conditions '.

We mentioned the above to Dr Horne, in replying to his comments (page 486), and he added :—

' What you say about rain and a wet surface, is interesting. In photographing a section in a cutting, on looking carefully at the face, of course you see all the different fillings or *strata*. Often they are so alike in tone that they photograph badly, and it is only in a drawing that the real state of things can be expressed.

' If however the face is syringed with a fine greenhouse syringe, the layers absorb the water differently and they frequently become plain enough to make a good photo. A syringe and a bucket of water are quite useful adjuncts to out-door photography. It is needless to say that the syringe should be one with very fine holes, and it must be used gently '.

Miss M. C. FAIR writes :—

' There is one point about Reflex cameras which I find somewhat awkward for certain subjects and that is the waist-line view point. I use my direct vision finder quite a lot when there are obstructions in foreground which want toning down, such as for instance fences, or tombstones when taking church exteriors. Many of the cameras now sold have direct vision finders of bad type with no proper centring fitting, which means you may get what you want on plate or film or you

PLATE I



SAXON BURIAL, CAMERTON, SOMERSET
B. VERTICAL PHOTOGRAPH OF SKELETON
(See p. 486)



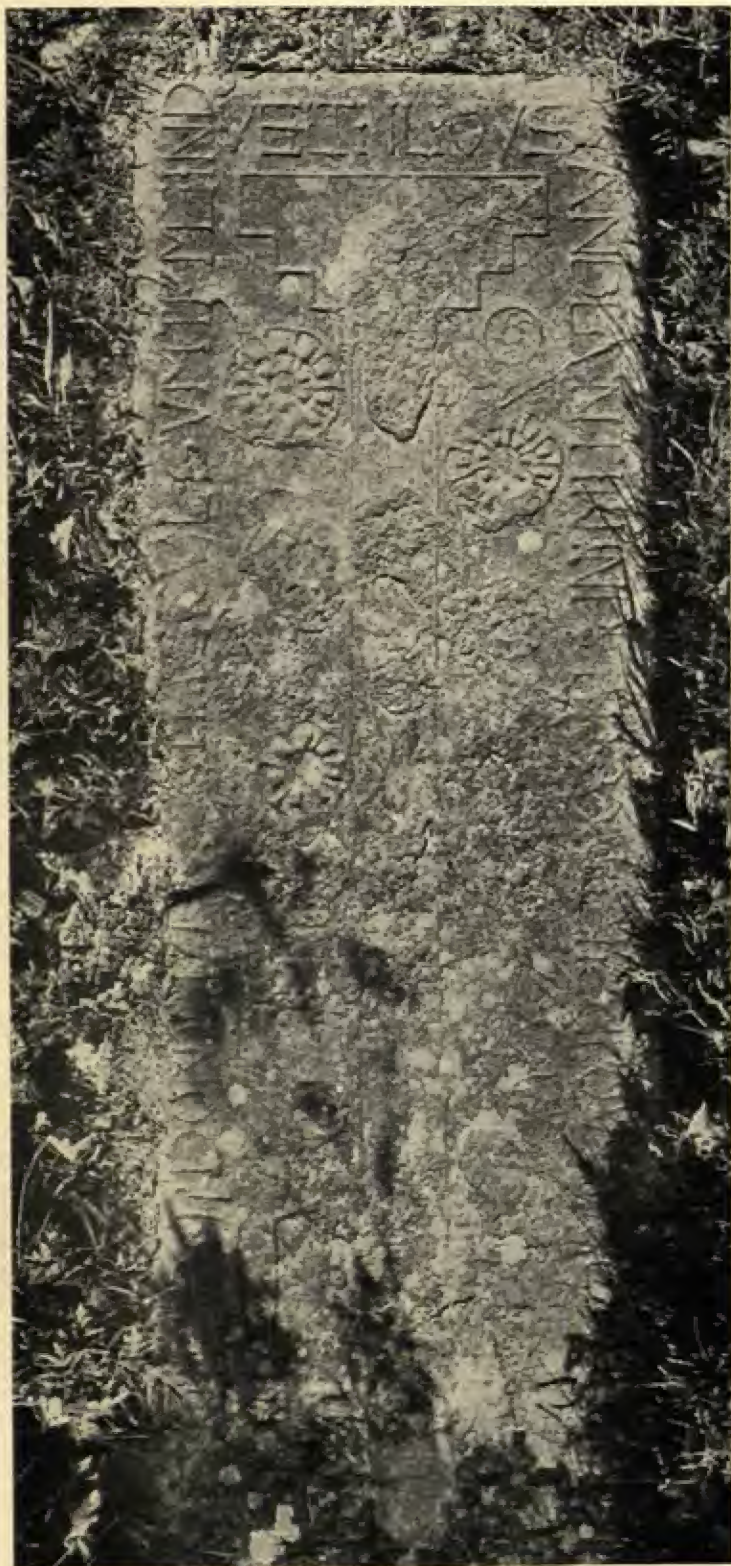
SAXON BURIAL, CAMERTON, SOMERSET
A. SKELETON PHOTOGRAPHED FROM FOOT OF GRAVE
(See p. 486)

PLATE II



ROCK-ENGRAVING (ARCTIC, STYLE B) IN PECKED TECHNIQUE AT EKEBERG, NEAR OSLO. (See p. 458)

The engraving is barely visible in sun-light, but can easily be seen when the rock is glistening with rain, as when this photograph was taken. Alternatively the outline is visible at night by the use of artificial light.



INSCRIBED GRAVE-SLAB, CIL BARRA, ISLE OF BARRA, OUTER HEBRIDES. (See p. 490)

Vertical photograph taken with Rolleiflex without any apparatus

Ph. O. G. S. Crawford

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may not. I think these Direct Vision finders should have a cross wire on both fore and backsights and then you could be certain of getting your exposure properly and accurately centred.

'I use a Telephoto lens for certain types of field record work, a 11 inch Ross lens on $\frac{1}{4}$ -plate focal plane camera. It is valuable for obtaining details looking down or across valleys from heights; its defect that it "concertinas" perspective for certain classes of subject. My ordinary $\frac{1}{4}$ -plate camera has a $5\frac{1}{2}$ inch lens, while my $3\frac{1}{4} \times 2\frac{1}{4}$ camera has a $4\frac{1}{2}$ inch lens which on the whole gives satisfactory perspective, except that distant mountains are dwarfed. I agree as to Agfa films: they are very first-rate indeed. Personally I prefer Panchromatic, generally with a no. 1 filter. I find that for all-round results I get the printing quality I need most satisfactorily with pyro-metol developer, a formula I had used during the war. For lantern-slide making however I prefer negatives developed with one of the newer "fine-grain" developers.

'I hope you will give us some more of these photographic hints. I hope by degrees to obtain useful records of all the innumerable sites in this West Cumberland area and any help towards good work is exceedingly welcome. Your published photographs are of the very first class, one might almost say in a "starred" class by themselves, and are a joy to study'.

We may add a few comments of our own. The two photographs reproduced in the September number (PLATES IV-V, between pp. 352-3) were taken with almost identical apertures ($f.6$ and $f.8$) and exposures ($1/50$ and $1/25$), and we can assure Mr Fullbrook-Leggatt that the difference in angle was so minute as to be negligible. It was, moreover, quite unintentional. We maintain that the comparison is a perfectly fair one. Apart from this, however, the type of film used, the speed and the lens cannot, in the case of an inscribed or carved stone, make up for lack of proper lighting, which is the prime factor. The slight alterations in aperture and time were necessitated by the change in lighting that occurred between the two exposures.

A stand certainly gives sharper definition, but with speeds of $1/50$ th and upwards, the difference is so small as to be negligible with ordinary enlargements. Moreover it is often not practical to use a stand, on account of the time taken in setting it up, or because one does not want to attract loiterers (as in street-photography) and for many similar reasons. Rapid mobilization (and sometimes equally rapid

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disappearance) are often factors to be considered if one wants to get successful pictures.

An exposure meter is certainly useful and I often use one. Nevertheless, under normal conditions, intuition is a safe guide. At any rate without it no one can become a successful photographer, even with the aid of an exposure meter.

I agree that a wide-angle lens is probably necessary for archaeological photography; it certainly is for the excavator. A panorama camera is also useful, but the great length is difficult to reproduce in half-tone without resorting to folding, and that is a serious drawback. Panorama photos would be useful, however, as an adjunct to exhibition of the specimens in a museum.

Over-exposure certainly enables good prints to be made, but at a great cost of time.

Vertical photographs of graves are infinitely preferable to obliques. They can, however, be secured with a Rolleiflex without any apparatus at all, by simply holding the camera at arm's length with the lens pointing vertically downwards. Focussing can be done beforehand in the ordinary way. If the object is too long to go on one exposure, two can be made, with a big overlap, and the prints joined together afterwards. The grave-slab* reproduced in this number (PLATE III) was taken in this way. This method is very suitable for objects like post-holes or groups of grave-goods, and could probably be applied to cup-and-ring-marked rocks with good results.

We commend these remarks to our readers. Such public interchange of experiences ought to be mutually profitable. In future we shall never set out for a day's exploration without two ash tripods, a 6-foot wooden bar, a syringe and bucket, a stand, an exposure meter, a lens-hood and several different types of camera!

* The slab is in the graveyard of St. Bar's Chapel, at the north end of the Isle of Barra, Outer Hebrides. I am indebted to Mr A. W. Clapham, F.S.A., for the opinion (based upon these photographs) that it probably dates from the 16th or 17th century. The inscription is only partly legible on the photographs, on account of unavoidable shadows, but is read by Mr Clapham as follows:—'Donald Mac(k)ul sumtyme induellt in Liou and . . .'. Liou is presumably the island of Lewis.

Reviews

THE CONCISE OXFORD DICTIONARY OF ENGLISH PLACE-NAMES. By EILERT EKWALL. *Oxford University Press*, 1936. pp. 520. 15s.

In the history of every subject and technique there is a period when the whole field can be covered by a single individual. Johnson compiled a dictionary of the English language. General Roy made a large-scale map of the whole of Scotland. Ogilby produced a road-book of England. Gibbon wrote a history of the Roman Empire. Buffon covered the whole field of nature single-handed. Today these tours-de-force are hardly possible. Such pioneer efforts have been replaced by co-operative undertakings. Their place has been taken by the Oxford English Dictionary, the Ordnance Survey, Bradshaw and the Cambridge Medieval History. The individual is to some extent replaced by the group or society whose members divide up the field between themselves, each cultivating his own selected strip, just as the family farm might have been superseded by the village community.

The study of English place-names is still in the first stage, but is rapidly passing into the second. That it is still possible for a single individual to cover the whole subject is proved by Professor Ekwall's magnificent effort, which is fully comparable with Johnson's dictionary. It crowns the life-work of the leading authority on English place-names, and is a masterpiece of scholarship and erudition, which will hold the field for at least a generation. It would be easy to continue in this strain, to praise the originality, the soundness of method, the accuracy of detail and the completeness of the gigantic task so happily concluded by this publication. But one of the tasks of a reviewer, however incompetent, is to find faults and to criticize, however difficult. His other task is to describe the contents of a book, and that, in the case of a dictionary, is quickly achieved.

The dictionary deals 'with the majority of what may be called the chief English place-names, especially the names of villages, but also other names, such as names of counties, rivers, lakes, hills, headlands'. A very rough estimate suggests that the total number of names dealt with is in the neighbourhood of 12,000.

Included in them are many of the chief elements entering into the formation of place-names, with references to the names in which they occur, ranging from rare words occupying a line or two to such common ones as *Stoc* which, with the instances of *Stoke*, fill nearly two pages in all. The method adopted is the only one admissible, now that the study of place-names has become scientific—that is, the historical method. Early forms are cited and references given. The list of works consulted, and abbreviations, alone occupy 13 pages. Apart from these pages, the introduction—itsself a small monograph of 28 pages—describes the various types of place-names, their different origins (Celtic, English, Scandinavian, Latin and French) and the arrangement of the dictionary.

In another publication Professor Ekwall emphasizes the need of studying place-names in their topographical context. There is one group of documents that lends itself peculiarly to this treatment—the land-boundaries often attached to pre-Conquest charters. When it is possible to identify bound-marks with still-existing objects, such as ponds for instance, the mere topographer, provided he realizes his limitations as such,

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can often render valuable aid to his master, the philologist. It is only to be expected that an Englishman should have many opportunities (cartographic and geographic) of rendering such aid to one who must perforce conduct most of his researches in another land. For example, Professor Ekwall is plainly at a loss to account for the common suffix *-mere* ('lake, mere') when it is attached to upland settlements such as Buttermere (Wilts), and Ashmore (Dorset). But the explanation, provided by study and identification of certain land-boundaries, is quite simple, and I gave it 26 years ago ('The Andover District', written 1910). Mere meant a pond. The instance *throcmere*, cited by Professor Ekwall himself from BCS 508 (bounds of Buttermere), can easily be identified with the still existing Rockmore pond, the place where now the counties of Hants, Berks and Wilts meet. I published this identification many years ago ('The Andover District', Oxford, 1922, p. 72) and have known the pond since I was a boy. Here the identification is quite firmly established. It may be added that there are still large ponds in the middle of the villages of Buttermere and Ashmore. Personally I believe them to have originated, with the associated upland settlements, during the Romano-British period, if not before. Further evidence in support of this view will be found in Mr H. S. Toms's admirable and too little known studies of ponds published in the *Sussex County Magazine*.¹ I hope some day to collect and publish in full the evidence of the charters bearing upon ponds. It is too full to cite in a review.

The OE suffix *-baec* ('back'), which undoubtedly enters into the composition of Burbage, Wilts (where *baece*, *bece*, a stream, is topographically impossible) also demands fuller treatment than is possible here. The word still survives in Somerset with the meaning of hill; its dialectical use here was observed by Aubrey in the seventeenth century,² and there are dozens of instances (such as Castle Batch, castle-mound) to be found upon the 6-inch Ordnance Maps. One such in Dorset (Windsbatch, near Upway), suggests (as do the land-boundaries) that the word originally had a much wider geographical extension. This is a case where the English worker, with ready access to large-scale maps and to the sites involved, has a definite advantage, and it is up to him to justify his opinion by stating it in full with the supporting evidence. The onus of proof lies upon him, and he must not expect to convince the sceptic until he has done so. On the other hand, the evidence is there now, available for all.

Yet another rather similar instance is the name of Southampton, where the reviewer has lived for many years. The prefix was adopted, he believes, not to distinguish it from the distant town of Northampton, but rather from the suburb of Northam, the site of the old town before it was removed to the present walled site. The explanation given ('*tun* in a *ham* or river land [is not this a misprint for 'river bend' ?]) is admirably suited to describe Northam, but not for the walled site. One or two more early forms might perhaps have been mentioned, though they do not affect the meaning (e.g. Hamwih, the first mention, in *Hodoeporicon S. Willibaldi*, ed. 1874, p. 14).

One of the greatest difficulties of dealing with even the small area of England is the range of contrast between the North and West on the one hand and the East on the other. (That difficulty is even more formidable when one has to deal with the whole of Great Britain, as every archaeologist realizes). There is a complete lack of homogeneity between Kent and Cornwall, between Northumberland and Dorset. To cover the whole

¹ It is to be wished that some enterprising publisher would persuade Mr Toms to re-issue his articles in book form. A Batsford 'Book of Ponds', with abundant plans as well as beautiful photographs, would be a welcome addition to the topographer's library.

² *Monumenta Britannica*, Bodleian Library.

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field adequately, even in one department of knowledge, is almost beyond the powers of a single individual, however learned. It is natural therefore that the Celtic portions should be more open to criticism than other parts of the dictionary. Authoritative criticisms can be made only by qualified Celtic scholars, and the present reviewer can merely point out minor slips which his own researches have revealed. In the explanation of Trigg, Cornwall, the mention of *pagus Tricurius* in the 'Life' of Sampson is cited, but the region is wrongly identified with Tréguier in Brittany; actually *pagus Tricurius* certainly refers to the Cornish region, and it is valuable as being one of the oldest Cornish place-names (excluding classical references). So too St. Kew, whose early forms Lannoho, Landeho [should not this be Landoho?] are cited, is to be identified with Sampson's Docco. In connexion with another Celtic saint, St. Keyne—of very vague historicity—we take the opportunity of correcting a previous statement³ that she was connected with Keynsham, Somerset. The correct derivation, from Caegin (the river-bend of Caegin), is given in this dictionary. The earliest form of Arthuret, namely Armterid (Nennius), is not given; the identification with Arderyd, Arthuret (Cumberland), is accepted by Celtic scholars.⁴ The correct reading of the early Celtic name of Gloucester is not Cair Gloui but Cair Gloiu (Harl. ms. 3859, fol. 185), which brings the name into line with such others as Gloiumed (Book of St. Chad marginalia) and the numerous similar forms which can be found in the Book of Llandaff. The form Gloiu is also predicated by the later form Caer Loyw.⁵ The explanation of Coquet is negatived by the decisive pre-Conquest form *Cocwædesæ*=Coquet Island.⁶ In general the Lives of the Saints do not seem to have been ransacked as thoroughly as some other classes of document, though it must be admitted that without scholarly editions of them they are dangerous; for the Bollandists' transcription of place-names was often shockingly careless, and subsequent editors such as W. Stevenson (not to be confused with W. H. Stevenson) often copied straight from them, not from the original manuscripts.

A peculiarly interesting name is Thruxton, Hants (Thurkil's *tun*). The personal name is Danish; and there is in the village a rectangular enclosure, with a mound in one corner, of a type quite common within the Danelaw. It is reasonable to conclude that this was the actual *tun* of Thurkil.

A ME. form of Ibberton, Dorset (Ecbrechtintone)⁷ suggests that the personal name involved was Ecgbriht, rather than Eadbeorht.

We doubt whether Featherstone, Northumberland, is derived from a 'cromlech'. Such are unknown in the county. A small stone circle (like Duddo Four Stones) is more likely. (For 'headstone' should be read 'capstone', to conform with archaeological terminology).

The interesting name of Calshot, Hants, is omitted. The early forms are *Celcesora* (KCD 626, A.D. 980), *Calchesorde* (14 c.), *Calsherde* (1539). It may be suggested that the name originated from the use of the tiny harbour behind the shingle-spit by ships

³ *Custom is King*, 1936, p. 188. I am indebted to Canon Doble for kindly putting me right.

⁴ This information reached me too late for use on the first edition of the Ordnance Survey map of Britain in the Dark Ages (South sheet).

⁵ See Phillimore, *Y Cymmrodor* 1892, xi, 173; *Liber Landavensis*, ed. 1893, p. XLVII and index; John Rhys, *Arthurian Legend*, 81, 365.

⁶ Vit. Anon. S. Cuthbert, St. Omer, MS. 267, 9th century; cf. Bede, Vit. Cuthb. Acta SS. 1736, Mar. III, 108.

⁷ This occurs in a Perambulation of Blackmore Forest (Hearne's *Adam de Domerham*, 1727, II, 653); the passage was accidentally omitted from Hutchins's transcription (*History of Dorset*, IV, 519).

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or barges bringing chalk from Paulsgrove or Newport, for marling the limeless soils of the adjacent cultivations. The practice of using chalk marl is still continued near by at Nursling (Southampton), where the soil is equally barren in lime. The genitive is a difficulty, but not more so than in *Cocwædesæ* above. A similar origin is given for Chelsea (=Cealc-hyth).

The derivation of Inkpen, Berks, may be correct, but it has nothing to do with Inkpen Beacon, for that name was invented by the Ordnance Surveyors who placed one of their triangulation beacons there. The height, originally given (and here quoted) as 1011 feet, was the first (trigonometrically fixed) value obtained; it has been replaced by the far more accurate one of 975 feet in all the modern maps. If a hill is involved in the name it is more likely to be one immediately above the village. The form *pen* occurs also in the interesting name Sixpenny Handley, Dorset^a (*seax pen*) near the site of the battle of Ac-lea. It is worth noting that, if the battle of Brunanburh did actually take place near Burnswark, Dumfries, the Pennersaugh=Pen-Seax close by is another case of battle-association, suggesting that all such names denoted traditional battle-sites of Briton and Saxon.

In explaining Silchester Professor Ekwall suggests that 'the first element may be a derivation of OE *sealh* "sallow"'. He cites early forms in *Sele-*, *Sili-* and *Cil-*. There are in fact quite a few ME forms in *Cil-*, and we cannot help thinking that this is derived from the Roman name of the town, Calleva, which Professor Ekwall says is related to Welsh *celli*, wood. Our explanation is not accepted by the authorities; and in view of the long period of desertion, the survival of the Roman name would perhaps be unlikely; nevertheless we still prefer it to any other.

Wayland Smith's Cave, the famous chambered long barrow, is in Berks, not Wilts (p. xxviii).

But these errors, such as they are, are trivial when compared with the rest of the book, which is a splendid and scholarly achievement. O.G.S.C.

EXCAVATIONS AT NUZI. Volume III: Old Akkadian, Sumerian, and Cappadocian Texts from Nuzi. By THEOPHILE JAMES MEEK. (Cambridge, U.S.A.: Harvard University Press. London: Humphrey Milford, 1935). pp. LIX, and 93 plates. 6 dollars.

In a volume of texts from the site of Nuzi (not far from the modern town of Kirkuk) we are accustomed to expect a series of legal records belonging to a non-Semitic people now generally called Hurrians, who wrote however in a Semitic dialect. Professor Meek here presents us with something quite different: the tablets found in a lower stratum which antedates the coming of this people, and belongs to the period when the land was under the rule of the Sargonid kings of Agade, as testified by the script, language, form, and names which characterize these tablets. At that time, about 2600 B.C., the place was not yet called Nuzi, which is presumably a Hurrian name, but it had another appellation possibly to be read Ga-sur. In a very full and useful introduction the author discusses the classes of his material (which includes a few 'Cappadocian' tablets); the historical implications; places mentioned in the texts which cover a good deal of country from the Tigris eastwards and also southwards into Babylonia; the names, with their preference for iterative forms, and some special texts such as the very interesting 'map' with its clear marking of the compass points, and its notation of mountains and rivers; he also translates a group of letter-tablets.

^a For other instances see ANTIQUITY, 1934, VIII, 338-9.

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The introduction concludes with a full list of names, and a descriptive catalogue of all the texts, which are mostly lists, receipts, and the like. This is doubtless the most satisfactory method of publishing records of this kind which are not such as to make a full translation worth the space that it would occupy. The copies of the cuneiform are good and clear. C. J. GADD.

EVIDENCE OF EARLY MAN IN NORTH AMERICA. By EDGAR B. HOWARD. *The University Museum, Philadelphia, Pa., The Museum Journal*, 1935, vol. XXIV. pp. 61-176.

In this monograph the author describes the results of his field-work in investigating caves and shelters in the Guadalupe Mountains, and in the old lake-beds near Clovis, both localities being situated in New Mexico.

These investigations have established the fact that associations of extinct animals occur with stone artifacts, and offer evidences that man lived in North America at a time when climatic conditions were very different from those of today at the same latitudes. To ascertain as precisely as possible the time when man first appeared in North America the author has brought under observation many different phases of the problem, including the latest estimates of Late-glacial and Post-glacial times, the migration-routes *via* the Bering Strait, sundry anthropological deductions, and definitions of the two types of stone implements that occur, namely the Folsom point and the Yuma point.

Detailed sections of the lake deposits are given and the location of the fauna and the artifacts are recorded, while an adequate number of sections, plans and clear photographs illustrate the letterpress.

His comparative scales of Late-glacial time-estimates, according to different observers, emphasize the wide divergence of opinion among them and call attention to the comparative lack of value of such estimates.

The sections dealing with the typology of the American 'points' is of much interest; as is also the observation that these two types so far have not been recognized in Europe.

His researches tend to prove that there is no longer any question that man was contemporary in America with types of animals that are now extinct, or with types that now live elsewhere, mainly in colder climates, either in higher latitudes or at higher altitudes, or both. Such, for example, as the Musk Ox.

The artifacts found in association with the extinct animals are apparently always one or the other of those types of points described as Folsom and Yuma or Folsom-like. The Folsom-like points have been found associated with extinct animals but not in recent camp-sites. The style of flaking of these points is such that it can easily be recognized as different from the work on the other types, and the points have more highly polished surfaces than the implements known to be recent.

Comparison of the technique with that of European standards indicates that the points are not earlier than Late Palaeolithic. Finally, the author, having considered the several opinions of investigators of the subject, concludes that ten thousand years is the most satisfactory estimate of the time that man has been in America. H. DEWEY.

MENSCHEN DIE GESCHICHTE MACHTEN. Edited by P. R. ROHDEN. 2nd edn., 2nd impression, 1934. Vienna: W. Seidel and Son, Graben 29. 2 vols, 9 RM each volume (bound).

First published in 1931, this most interesting work went into a second edition in 1932, and was re-issued with but slight changes in 1934. It contains nearly two hundred

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brief biographies of men and women who within a span of some four thousand years have 'made history'. Each biography takes the form of a self-contained essay written by a scholar who is an accepted authority on the relevant period. While Austrian and German writers are in the majority, foreign scholarship—English, French, American, Dutch, Polish, Czech—has been freely placed under contribution, and the treatment of each subject is dispassionate and unbiassed. The term 'history' is interpreted *in senso stricto*, as meaning constitutional and political history, and as one turns the pages it is tempting to substitute the title 'men who have made or given occasion for war'. In ancient and medieval times these are kings and emperors, but from the Renaissance onwards the names of statesman and revolutionaries become increasingly frequent until with Napoleon III monarchs disappear altogether. Thus a chronicle which opens with Sesostriis, Hammurabi and Amenophis IV closes with President Wilson, Lenin and Georges Clemenceau. Space is found for a few political thinkers, Aristotle, Thomas Aquinas, Machiavelli, Hobbes, Bentham, for example, and for the more belligerent Protestant Reformers, John Hus, Luther and Calvin, but men of science find no mention, nor men of purely religious thought. The Jewish contribution to history is exemplified not by Moses but by Isaiah, not by Jesus but by St. Paul, and after centuries of eclipse the Jew reappears in the modern period in the guise of a Rothschild or a Disraeli. The last English name to appear is that of Joseph Chamberlain, apostle of Imperialism, a reminder that men who make history are not to be confused with *great* men. The problem of whom to include, whom to exclude, must have cost the editor, Herr Rohden, much careful thought, and no doubt every historian would differ in his judgment, while again a quite different view would be taken by the intelligent layman. Over a score of the names found in this list were unknown to the present reviewer, who felt absolved from a charge of gross ignorance on finding that they were usually unmentioned in the *World History* of Mr H. G. Wells. Many of them were of men concerned with the building of modern Germany, others of men who made themselves felt as eastern neighbours of the Byzantine and Holy Roman Empires, all of them those whose careers held no direct interest for Englishmen. Any list of 'men who made history' must, in fact, have a national bias, and to German historians it is axiomatic that the core of Western civilization as well as its key must be sought in the Germanic lands.

Only three women take rank as makers of history, and all by virtue of their absolute monarchy, since neither the woman statesman nor the woman Führer has yet appeared; the three are Elizabeth of England, Maria Theresa and Catherine the Great: the siren woman, a Helen of Troy or a Cleopatra, makes history only vicariously.

The biographies in themselves are admirable: well-balanced, lucid, concise. We carry away a clear-cut cameo of Ptolemy Soter, introducing a new epoch in classical science and literature; of William the Conqueror, welding an England that was henceforth to count in world politics; of Richelieu, the greatest statesman France ever possessed; of Leo XIII, who made the Papacy once more a force to be reckoned with; of Lenin,* whose dictum regarding colonial or 'exploited' peoples is reckoned as his most original contribution to modern thought. 'Wie sieht der Mensch der Gegenwart aus, wohin blickt er, was erstrebt er?' asks Professor Eibl in the concluding essay, and goes on to say: 'Das weltanschaulich Wichtige am ständischen Gedanken ist die Verbindung von individuellem Geltungs- und Tätigkeitsdrang mit der Einordnung in die nationale und staatliche Gemeinschaft'. How harmless and even admirable and

* In the edition circulated in Germany Lenin is omitted!—EDITOR.

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acceptable such a doctrine appears, until we remember to what uses it has been turned. Yet on broader ground we can agree with the writer. In the present age material progress has outstripped the progress of thought, and we anxiously await a new synthesis of metaphysics and technics, or more simply of religion and science: 'dann würde der Okzident doch wieder das geistige Zentrum der Welt'.
E. G. R. TAYLOR.

AN HISTORICAL GEOGRAPHY OF EUROPE. By GORDON EAST. *Methuen*, 1935. pp. xx, 480, with 58 maps. 15s.

Nemesis has overtaken the historians, for it has been left to clever journalists to garner the harvest of their meticulously specialized scholarship, and to retail it to the public. The younger men, however, are breaking away from tradition, and can even assent to the proposition that we are not finally and completely debarred from knowledge of the Dark Ages by the absence of 'documents'. Archaeology, place-names, and field-maps are taking rank as evidence, but with the disconcerting consequence that, unless he is to make a fool of himself, the historian must be something of an archaeologist, something of a philologist, even something of a geographer. For he must make critical use of the conclusions of these fellow-workers. Breadth of learning may no longer be completely sacrificed to the claims of depth.

Mr East's *Historical Geography of Europe* well illustrates the problem, for it is an attempt to reconstruct the European scene, the 'cultural landscape' as it is sometimes called, at different periods in the past. Up to a point he side-slips archaeology by taking as his starting point the period at which the Roman Empire was already established, but in chapter III he is obliged to tackle the problem of the Barbarian settlements. Here he gives us the results of the regional studies of Gradmann and Des Marez, and of the wider syntheses of Dopsch, and so becomes involved in the difficult themes of past climates, soils and vegetation. Unfortunately the British Isles, in regard to which readers will be more familiar with the arguments, are excluded from the scope of this book. The pattern of settlement naturally leads to a consideration of Meitzen's now more or less accepted classification (although without its racial connotation) into *Gewannndörfer*, *Einzelhöfer* and *Weiler*. Geographical conditions have clearly played their part in defining the distribution of the contrasting types, but is the connexion a direct one, or is it true that *Gewannndörfer* are found only where the land was already under cultivation when the Germanic invaders arrived? This, however, only throws the geographical problem back to an earlier day. Can we accept the thesis that neolithic Europe was, as a whole, drier and warmer than today; that there was consequently a greater extent of 'open' formations of the *steppenheide* type; that these areas were under neolithic cultivation, and that consequently they were saved from afforestation during a mild and wet period that supervened about 700 B.C.?

Mr East feels the difficulty of ranging across two or three millennia, and hence in the last part of his book selects certain sub-regions for more close examination, among them Sicily and the Danube. In the case of the latter he is at pains to show that archaeologists and historians are alike at fault when they speak of the Danubian 'highway' or 'corridor'. There is little evidence that the river was ever systematically navigated, or even followed along its banks, from source to mouth. Here, perhaps, the author is tilting at windmills. Professor Gordon Childe, for example, whom he cites particularly, seems to mean no more by the term 'corridor' than the broad belt of low plains and plateaux that can be loosely grouped about the Danubian axis. A precise use

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of geographical terminology can only come with a more precise knowledge of geography, and particularly of the topographical map.

The 58 illustrative maps which Mr East has provided are well thought out as regards their content, less well as regards their technique. There is more virtue than at first appears in giving just this thickness to a line, just that shape to a symbol. The random hit-and-miss method of map-drawing can no longer be allowed to pass unchallenged. It would not be just, however, to end this review on a note of criticism. As Mr East truly remarks, 'The historical geography of Europe . . . remains still in large measure an unexplored field for research'. Laying aside academic caution, he has taken a plunge into the unknown, in the hope that others will follow. We are indebted to him.

E. G. R. TAYLOR.

MANUEL D'ARCHÉOLOGIE PRÉHISTORIQUE CELTIQUE ET GALLO-ROMAINE JOSEPH DÉCHELETTE. Vol. VI, *Archéologie gallo-romaine, par Albert Grenier, part II, Archéologie du sol; Les routes. Paris: Picard, 82 Rue Bonaparte. pp. 1-468, figs. 1-156, 3 folding maps. Price not stated.*

M. Grenier and this reviewer have not in the past agreed as to the scope of a general archaeological survey, and we shall no doubt agree to differ. The subject of this volume, however, demands far less comparative material and deals with a subject more concrete than the fragmentary remains of fortification in Roman Gaul. It therefore allows its author a better opportunity to display his gifts of clear arrangement and admirable exposition, fortified by well-read scholarship. The chief grounds for our former criticisms are here removed, for the subject as here treated has demanded little personal field-work and a deep knowledge of the French subject-matter. M. Grenier has a task well suited to his ability, and his happy choice of an introductory quotation from Bacon attests his faith in our power to appreciate the instructive volume that lies before us.

The first part of the work (1-144) is a careful collection of ancient authorities on road-classification, road-making, and the relation of roads to land-survey; on the growth of the road-system in Gaul, as testified by literature and milestones; on milestones, inscribed and uninscribed; on itinerary stones and kindred objects, and the itineraries whence they are derived. All this material is treated with a fullness rare in English monographs, and is therefore particularly welcome. There is little to add, but it may be noted that there is no mention of the preliminary surveying for roads.

In dealing with these landed interests, there are traces of two views in M. Grenier's work. The first (22) asserts that the land-surveyors redistributed adjacent property conformably with the road-system, and that this kind of procedure happened throughout the province; the second (399-400) contends that the Gauls may have already done this for themselves, if in less regular fashion than the Roman. But proof of either system is very weak, and Grenier is unwilling to accept the Orange inscriptions, though the fact is that while some of these refer to built-up areas, others indubitably refer to fields. He is therefore unable to cite a single example of the application of colonial centuriation in Gaul: the only instance is Agrippa's Ubian land, if this is certain. As for native fields, no instance of a Celtic network is yet forthcoming; and British examples, quoted as a general parallel, show that while minor re-adjustments occurred, the system as a whole remained as it was, exhibiting irregularities which would have been the despair of any Roman surveyor. On the other hand, British examples of centuriation are dubious at best: Haverfield was very diffident about his own example

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west of Colchester (*not* Rochester!) and a comparison of the *graticolati* of Lugo or Padua suggests that he was justified. Nor is the recent attempt to define the territory of Lincoln in better case. In fact, much more must be learnt before even advancing the view that agrimensorial operations in Gaul were based upon the road-system. Caesar's land-allotments apparently were not (Suetonius, *Vita Caes.* 38); and too little is known of the reforms of Augustus; at Orange, the town-plan cuts very oddly across the earlier road-system (*JRS*, XXIII, 152).

But, like the *census*, the provincial road-system was the imposition of Augustus: Caesar's armies were well used to do without roads, though Grenier most usefully collects the evidence for bridges. The Republic had built the well-known Via Domitia, but even in Augustan days this was not yet a first-class road, as Grenier demonstrates; and the fact that the Rhine road has yielded uninscribed stones like those of Pont de Cart, must, as he implies, give pause to attempts to assign these to an earlier period without further proof. Milestones give little proof of Augustan activity outside Narbonensis, and confirm Strabo in showing that Agrippa's trunk roads linked the provincial capitals and the Rhineland, as the headquarters of civil and military administration. The *civitates* were left to evolve their own systems, as Grenier well brings out, and the major roads in the northwest and elsewhere were only cared for in detail when Claudius had acquired Britain. All this is evidently the result of the concentration of military power upon one front, and in marked contrast with the systems of Spain and Britain, where the trunk-roads throughout the province were government-built, because of the wider dispersal of forces and the less wealthy resources of the smaller tribes. The emergence of the Gallic *leuga*, as contrasted with its submergence elsewhere, is no doubt due to these factors: while the local itinerary-stones testify in another fashion to local interest in the roads of a tribal unit. The presentation of details which accompanies these generalizations is not always quite easy to follow. Overmuch space is given to Forrer's treatment of a lost stone: and fig. 25 may not be a dedication, but could resemble *CIL*, XIII, 9097. The argument on *tabellarii* is curious. Grenier accepts Oxe's interpretation of *ILS*, 5807, as furlong-stones; but what is the connexion between these and Father Le Bonnetier's stones, spaced at least ten to the mile? His witness is not indeed to be ignored, but what does it prove? Again, the treatment of uninscribed milestones might have begun with sound examples, instead of the tombstone of Viromarus, or the shapeless stone of Le Mans. Side by side with these points, however, there is much interesting matter. The milestones of a private dedicator to the sanctuary of Mercury are exceedingly interesting. The correction of the Antonine Itinerary from Pamplona to Dax is excellent; the Iberian mile is not to be admitted here, though it occurs on the Astorga tablets, in the less Romanized lands.

The itinerary-stones and kindred objects will be of particular interest to students of a province where no such monuments have yet been recorded (except the Rudge Cup). The discussion of the Antonine Itinerary is particularly interesting as bringing out the general argument for dating the work, at a time when a closer dating for certain British sections has been attempted. M. Grenier makes a clear case for the document being Diocletianic in its present form, though ultimately derived from earlier work, together with its name. The difficulty is to decide when the Scottish portion was amputated, and to what moment the North Welsh portion belongs, or whether these different sections synchronize at all. The question is not decided by the Severan frontier, as he suggests. There are excellent sections on the Peutinger Map, the Ravenna List and the Bordeaux Itinerary; though it would be interesting to see where Kubitschek would fit the various

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itineraries implied by the Vicarello goblets and the Astorga tablets into his family tree, which is too naively small to fit the many possibilities.

Chapters VII and IX, which deal with the survival of Roman roads in the Middle Ages, to influence later distributions and place-names, might well have lent themselves to conflation and curtailment. But this is the comment of a generation with a lively faith in field-work. France also has produced some fine field-workers on her roads, from Bergier to Matty de Latour. But field-work is arduous; on the whole, archives offer an easier field, and France is a paradise for *archivistes*. The result is these two chapters, full of ingenuity and irrelevance, touching only the fringe of the problem. An odd by-product is the attempt to apply the method of tracing Roman roads by associated remains to archaeological material, such as tombs and temples. Figure 96 provides a good example of what would happen, suppose the known road were removed from the map, and we were left with the temples. The treatment must have been written as a warning, for M. Grenier concludes with the words: *nous venons, au cours de ce chapitre, de constater surtout la difficulté de cette tâche*. The sounder methods are those of Larue and St.-Venant, to which he accords important paragraphs in the next chapter.

The chapter on the course of roads is one of the most interesting in the book. The straight line was dictated by surveyor's convenience, and hardly with a view to field-survey. It must often have seemed like the Moscow railroad of Tsar Alexander; but the choice was not arbitrary, since there were no maps to dictate it, and important natural features were never disregarded. As soon as the engineers get into difficult country, some striking watershed and contour courses are in evidence. Very interesting, too, is the observation (well paralleled upon Trajan's Column) that bridges tend to be more numerous in military areas, to ensure open communication at all seasons. The votive deposits at such crossings will interest students of the Tyne bridge, while the footbridge at Montignies St. Christophe is a rarity worth remark. The posting-stations need careful study. If Jublains is a *praetorium* with *horrea*, it is a remarkably small one: and Swoboda was disposed to take the structure at Thesée as a villa, which it much resembles. Neither structure is in the least like the stations at Petit St. Bernard or Noreia.

The chapter on structure follows traditional lines, and includes the Latin terms derived from architectural contexts where road-making is not in question. Only the poetic *summum dorsum* is relevant, and in view of the metre, one cannot rely upon it. As Grenier well observes, these terms have ridden and obscured the observations of all since Bergier, and one may wonder why they should still be perpetuated. As in this country, the attempt to collect a body of information about Roman road-sections reveals how very sporadic the work has been, and how insufficient a basis exists for more than the most general survey. Large paving was no doubt more common in towns than the open country, if town-roads and their width at gates are relevant to a general survey. The great road from Cologne to Boulogne was paved for long stretches in large blocks, as was also the trunk road from Reims to Toul. The examples figured from Vienne (figs. 87, 104) both lie just outside the town, not beyond the suburbs. Most of the roads however, were the familiar gravelled type, of which many examples, largely from the German area, are cited. An exceedingly interesting minor class is the mountain roads, with their rock surfaces and cut runnels for wheels, to prevent slipping on the precipice.

The work closes with a valuable bibliography, and embodies a useful collection of maps to various scales. The standard of illustration throughout is greatly improved

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from the last volume, especially the printing of the half-tone blocks: but the nature of the subject has imposed that most of the illustrations should be line-blocks, and these are all well produced. I. A. RICHMOND.

WEALDEN GLASS: THE SURREY-SUSSEX GLASS INDUSTRY (A.D. 1226-1615). By S. E. WINBOLT. Hove: Combridges, 1933. pp. 86, illustrations (including 14 maps and plans).

This book was published in a subscribed edition of 500 copies more than two years ago. Profound apologies are therefore due to the author for reviewing it at this late date. With the exception of Hudson's *Nature in Downland* most books on Sussex seem to be written in a chattily intimate, local-patriot style.* Mr Winbolt follows their example, but his is the only book on the Wealden glass industry (as he well calls it), and amid its discursiveness there is new and useful information. Its defects would make a long list. The first chapter, 'Egyptian, Roman and Saxon glass', better omitted, contains no reference to Kisa (1908) and Morin-Jean (1913) and little evidence that these not unimportant authors have been read, to say nothing of such newcomers as Fremersdorf, Rademacher and Harden. The old nonsense about blowing at Beni-Hassan is well to the fore (p. 1). Glass was not a 'Roman technique' (p. 4), but several techniques, Syrian and Egyptian. The 'exotic', but quite ordinary, neck of +OYTIENQN XPΩ will not convince Mr Winbolt that orientalism was rife in the North of Europe, or lead him to its Rhenish kindred. The cone-beaker with zig-zags at Worthing is described *tout court* as 'Saxon "twisted" ale-cup'; not a word about 'hroden' or *Beowulf*. Is 'palm glass', in quotation marks, from the same source, and are we expected to infer from these bald captions the size, colour, find-spots, and present location of the objects illustrated?

In three adequate chapters on the Normandy and other families who settled in the Weald, Mr Winbolt rightly stresses the importance of the glass industry in obtaining a royal charter for Chiddingfold (1300), and he has also discovered that John Paytoe by his will of 1535 bequeathed his moulds and tools to his son. The last fact is important. It tends to confirm the impression left by medieval glasses that a 'line' once established changed little in generations. It argues a degree of decorative feeling not without parallels in the blown ribs of German 14th- and 15th-century glass. And if moulds were worth bequeathing, the question must arise whether glassmakers, in the Weald, understood the use of (heated) metal moulds.

The foundations of this study were laid many years ago by the Rev. T. S. Cooper of Chiddingfold, his daughter the late Mrs Halahan, who was unmethodical but accurate, Mr Wyndham Hulme and others. A body of names and dates was thus collected from local parish registers, wills, deeds of sale, and the like. There is probably no reason to doubt the accuracy of these facts, but Mr Winbolt, living in Sussex with his sources all round him, gives few references to primary authorities. Where are the legal documents and who has read them? What are the exact dates and wording of register entries? An extensive passage is blithely quoted from a borrowed copy (p. 45).

Chapter v starts well on glassmaking in Kent and ends with a sighing and a sobbing over 'veteran oaks'. After this Mr Winbolt reaches the glasshouse sites on which he has dug. He lists 27 (chaps. v-ix), adding in many cases the latitude and longitude and describing the siege-pot fragments, furnace droppings and vessel and window-glass

* Not Dr Curwen's *Prehistoric Sussex* however.—EDITOR.

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fragments. The identification of the sites with recorded place-names seems to require more support from local topography, early maps and place-name studies, subjects which do not appear in the list of books (p. 74). And Mr Winbolt does not realize sufficiently how difficult it will be for the next civilization to trace how kilns and sites in the Potteries have changed hands in the last two centuries. But one is disposed to agree with his main thesis, that a rather hard pale-green metal, found a foot below the ordinary level and not unlike certain late 'Roman' metals, sometimes free-blown and sometimes blown *with* a mould, is anterior to the beautiful *Waldglas* of the 16th century. Whether or not this fabric goes back to the Laurences, it is not credible that a flourishing glass industry existed in the Weald for 300 years without producing the phials, bottles, lamps and urinals of common medieval use. Mr Winbolt's tendency to close the 'mediaeval gap' has been a marked feature of other glass studies published in recent years.

We may be grateful at the end for the list of dates and the translations from Theophilus and Agricola, though 'Heraclius' might have been added, with the texts of all three. Mr Winbolt's scoop is the first translation in English of the notes on *Glaskunst* compiled in Rome by the Swedish monk Peder Männson (c. 1460-1534). Männson is especially interesting for his mention of the 'point' (Swed. *pig*) which produced the high, sharp, conical kick of medieval bottles, both in the Near East and in Europe, and was still used in English phial work of the 17th century. As for the illustrations, too many of them are devoted to the Wealden picturesque. They are not even numbered. The drawings of fragments are far from revealing and the many sketch-maps more useful than elegant.

Professional archaeology has been inclined to turn up its nose at this 'lone' excavator and his predecessors. He does not obey the rules which sometimes make archaeology unreadable. He specializes in an industry and its history. Professional archaeology rarely does so, because it is usually unaware of the most ordinary technological facts. It cannot therefore complain if Mr Winbolt waves his spade a little wildly. He has had the good sense to see his subject with the eyes of a modern body for industrial research, the Society of Glass Technology. This gives him standing in a living industrial world which professional archaeology does not yet possess.

W. A. THORPE.

DIE BANDKERAMISCHE ANSIEDLUNG BEI KÖLN-LINDENTHAL. By WERNER BUTTLER and WALDEMAR HABERER (Römisch-germanische Forschungen, 11). pp. 178, 83 plates, 2 plans. Berlin, Walter de Gruyter, 1936. 2 vols.

The Danubian village at Lindenthal near Cologne is the first neolithic village to be excavated and published completely. The information to be expected from such a complete excavation is naturally of a quite different order from that obtainable by test-sections through ditches and dwellings, such as have hitherto contented British and Continental archaeologists. We may expect light on crucial economic and sociological questions which cannot be solved by small-scale excavations, however scrupulously conducted. Nor will our expectations be disappointed. Not only has the long campaign at Lindenthal firmly established a ceramic sequence and brought to light new types of construction that could never have been defined by any partial exploration; it has also furnished data for reconstructing the sub-Boreal landscape, for estimating the population of a Danubian village and for studying its agricultural economy.

The more outstanding conclusions have already been presented to readers of *ANTIQUITY* in an article (March 1936, pp. 25-36) by one of the excavators. It should have served to whet appetites for details as to the methods of excavation, the evidence

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on which Buttler's conclusions were based and other results obtained. This demand should be satisfied by the complete, exhaustive and well-illustrated publication under review. It will be recalled that the area excavated covered about $7\frac{1}{2}$ acres, that it comprised a village or succession of villages occupied over a period long enough to be divided into four phases, and that a variety of structures—ditches and palisades, pit-dwelling complexes and refuse pits, store-houses and barns—were recognized within it. All are here described in detail. Two large plans on a scale of 1 : 500 illustrate the totality of structures traced; eight plans on a scale of 1 : 1200 show the distribution of the several types within the excavated area and between the several chronological phases. Plans and sections of the ditches and of the most important dwellings, pits and barns are added, and every one is described in detail in the text.

The measurements upon which all these plans are based were made by one, or at the most two, professional archaeologists who had at the same time to supervise the work of as many as 100 labourers. What a monument to the energy and devotion of Herrn Buttler and Haberer and to the efficacy of the training and encouragement they received from Dr Bersu. The concise account they give of their methods forms in itself quite a manual of the excavators' technique (though it must be remembered that the löss on which they worked, if inferior to chalk, is a far more favourable soil for the recognition of disturbances than the gravels or clays underlying too many British sites). Their labours have produced a picture of a Danubian settlement quite different from any available when I tried to summarize the evidence eight years ago. Their methods and thoroughness brought to light structures not marked by any occupation-deposit. Thereby the hotly disputed question whether the Danubians built rectangular or curvilinear houses has been settled: their dwellings were curvilinear but they also erected rectangular store-rooms and barns side by side with these. Buttler happily illustrates the construction and function of these various structures by the modern analogies from Hungary and the Balkans which he has already described in *ANTIQUITY*.^{*} Incidentally he draws attention to a rectangular store-house on piles in our own Glastonbury lake-village, unrecognized by its excavators.

From the house-foundations Buttler is able to estimate the population of this typical neolithic village at the time of its widest expansion at 'between two hundred and three hundred souls': the figures two to three thousand mentioned in his *ANTIQUITY* article, must be due to a slip. He further adduces valid grounds for computing the total life of the settlement at only three centuries and the duration of the whole Danubian I development at not more than 500 years. He uses this deduction to justify a fresh protest against exaggerated estimates of the length of the New Stone Age in northern Europe.

The excavation yielded abundant relics, notably Danubian I pottery of all varieties, from the simplest linear ornament through Menghin's music-note style to the complex hybrids, familiar from the Belgian Omalian. The excavators explain why simple stratigraphical observations do not suffice for determining the sequence of these styles and why the contents 'of a single dwelling-pit' need not constitute a chronological unit. The discoveries, often reported, of several distinct styles of pottery 'in one and the same pit', are no proofs of their contemporaneity; instead the occurrences of the several styles in the intact floor-deposits of the various dwelling and refuse-pits were tabulated. From the statistics thus compiled it is seen that the fourteen ceramic types

^{*} His article was first published in the *Bonner Jahrbucher*.—EDITOR.

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distinguished actually fall into four groups, the components of each repeatedly recurring together on the floor of the same pit. A small number of cases in which the intersection of two pits revealed the relative age of each sufficed to establish the sequence of the several groups. It is by this means that the long dispute as to the relative chronology of Danubian pottery in western Germany has at last been settled.

In the study of the site and its relics the assistance of other disciplines was most profitably invoked. Thus microscopic examination of the pottery proves, what had been inferred from stylistic peculiarities, that some vessels were actually imported into Lindenthal from other villages, some probably as far away as the mouth of the Main. North of the Balkans this is the first case of trade in articles so fragile as pots being rigorously demonstrated for neolithic Europe; in Thessaly neolithic commerce in pots was proved by Wace and Thompson twenty-five years ago. Incidentally such imports help to extend the relative chronology, established for the Cologne district, to other parts of the Rhineland. Petrographical analyses show that some stone implements too, or at least the materials for their manufacture, were imported—a fact not surprising to British prehistorians. The geological survey of the site again provides the data necessary for appreciating the environment to which the village was an adjustment.

Altogether the book is impressive testimony to the skill and devotion of its authors, to the foresight of the Römisch-germanische Kommission of the German Archaeological Institute and to the enlightened patriotism of the State and municipal authorities. The result is a precious contribution to prehistory—not only to the solution of special technical problems such as the determination of culture-sequences and house-types, but also to the more humane study of the economy and social structure of a neolithic group. And Buttler's concluding remarks should be taken to heart by prehistorians in all countries. 'In prehistory it is now time to turn from small special problems to wider vital issues and in excavation to attack great objectives rather than to follow the reverse road. If only one or two complete settlements, characteristic of each culture and each epoch, could be fully excavated, we should gradually accumulate the data from which to build a reliable picture first of the material, and then of the spiritual, culture of the past. Then many theories and hypotheses with which prehistory still has to work, would vanish to make room for a sure foundation for further research'. But have we in the British Isles yet reached the stage, achieved in Germany by the innumerable small excavations of the past, when we should turn from section-cutting and testing to concentrate on operations which must last over many seasons and absorb large sums? V. G. CHILDE.

DEDALICA: a study of Dorian plastic art in the seventh century B.C. By R. J. H. JENKINS. pp. 94, and 11 plates. Cambridge University Press, 1936. 7s 6d.

In this small and useful book the author has attempted to bring some order into our knowledge of the art that developed in the Peloponnese and Crete in the earliest age that can correctly be called Archaic, which followed immediately after the Geometric. His primary difficulty is with chronology within the seventh century, a century notoriously free from fixed dating points. As he says (p. 60) 'the independent external evidence for dating is disappointingly meagre. Not a single head of which we have hitherto made mention forms part of an extant grave-group'. He therefore makes 'the assumption that Dedalic heads of all schools which showed the same stage of stylistic development are contemporary'. But this otherwise reasonable assumption meets at once an insoluble obstacle in the strange case of Etruscan bucchero vases, dated firmly to 560-525, which

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are decorated with 'Dedalic' heads of a century earlier in type. But he offers no solution: 'conditions', he says, 'of space and relevancy do not permit a discussion of this interesting problem here'. That, I fear, is not the way to dispose of an instance which stultifies a general principle proposed as the basis of the method of classification. Nor does his entire omission of the most important locally-made Sicilian examples of the 'Dedalic' style help matters. Can we be sure that here, too, there is no time-lag? the earliest Sicilian terracotta figures from Selinus and western Sicily look as though they belonged to the earliest Dedalic period in the author's classification—that is to say to a date before the foundation of Selinus! If they are later, then they give us a second instance of a delayed style, similar to the Etruscan, which again stultifies the general assumption. That is the danger of establishing typologies—one has to omit the inconvenient.

Similar difficulties arise from a consideration of the Prinias goddesses. The author finds them so surprisingly sophisticated in treatment, though their structure is 'Dedalic', that their style 'is one of neatness and slickness combined with a slight self-consciousness and over-emphasis of archaic detail' that he is forced to exclude them from his typology; he assumes that they arise either from 'a peculiarly refined and mannered caricature' of the 'Dedalic' style that arose just after its close, or alternatively, that they are copies, made to replace damaged archaic work of authentic style. I have yet to hear of an archaic style that caricatures itself, and the appeal to damage and replacement must not be made unless it can be justified. Is there proof of any kind of such damage to the Prinias temple?

This repeated exclusion of the inconvenient from a perhaps too rigid classification suggests rather that the classification needs overhaul. While I have no doubt at all that Mr Jenkins's general arrangement of this most interesting Peloponnesian style, which he calls 'Dedalic', is correct in general, it is too rigid. Nor has he made it cover enough ground. His omissions are remarkable. I can find no mention of the Thera stone *koré* (who is unique among Dedalic sculptures for the treatment of her hair), and a bare footnote reference to the one important male Dedalic *kouros* fragment in Delos, of life-size and a perfect parallel for the Delphian bronze *kouros* which the author treats at length. Further, while the Cleobis is treated in full detail, the Delian colossus also receives a mere footnote. Both are post-Dedalic and deserve discussion together. The Dirmys and Kitylos pair from Boeotia are strangely assigned to the 6th century, yet they must be another unfortunate example of 'delayed Dedalic' if this is so.

Another omission, quite surprising, is that of the well-known group of marble lamps decorated with 'Dedalic heads'. It would have been interesting to see what provenience the author assigned to them, whether Cretan or Sicilian or Peloponnesian. Nor is the stone head from a half-scale 'Dedalic' statue at Sparta (Artemis Orthia) dealt with at all.

Finally it is dubious if the term 'Dedalic' can be assigned at all to the style with which the book deals. The oldest Greek references to Daedalus make him an Athenian, and, as Miss Richter has pointed out (*Metropolitan Museum Studies*, June 1934), Daedalus may well signify that movement in art exemplified by the late 7th and early 6th century Attic colossal sculpture of which the New York, Sunium and Dipylon *kouroi* are instances. If Daedalus meant anything coherent to a Greek, and there is little doubt that he did, he signified a sudden move of art towards 'life' and away from that strict formalism indicated by the works discussed in this book. That movement came at the close of the 7th century, and the 'pupils of Daedalus' are all datable to the first half of

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the sixth. How then can we employ the term for works dated by the author to 670 B.C.? Significantly he remarks of the Cleobis of Delphi, which he discusses fully, 'It is . . . ironical that Cleobis, should be in fact outside the group which has inherited the name of the artist'. It is indeed ironical, but rather because Mr Jenkins and other archaeologists have arbitrarily assigned the term 'Dedalic' to a period that it cannot cover. Some other term must be used—'seventh century Dorian' is adequate. Certainly sculpture of that age had not 'inherited' the name of Daedalus. To allege that is simple incorrect. It has been inherited only since the war and is a term that, like many in archaeology, should be replaced by one less misleading.

The language in which the book is written is more free from jargon than many specialist works of this kind. Indeed it is fluent and pleasant to read. But I have noted the following: 'declension' for 'decline', p. 44; a group of works of art 'centres in' a certain statue, p. 51; the group can 'collect round', or the statue can be the 'centre of', but a group cannot 'centre in'.

The term 'Dedalicism', used frequently, is a horror, due for rapid extermination and only to be used verbally: also 'tripertition', p. 33. The plates are good, though the Auxerre statue should not appear as a cast.

STANLEY CASSON.

A HISTORY OF CARMARTHENSHIRE. Edited for the London Carmarthenshire Society by SIR JOHN E. LLOYD, F.B.A. Vol. 1. From Prehistoric Times to the Act of Union (1536). *Cardiff: William Lewis Ltd., 1935. pp. xix, 375, with maps, and illustrations. 30s (to subscribers 42s for 2 vols.).*

Wales, probably because of its comparative poverty, is not rich in county histories of the old type. By way of compensation it produced the earliest, and in many ways the best, of all—George Owen's *Description of Pembrokeshire*, a work that astonishes by its insight and accuracy of observation. It was written in 1603 but was first printed by Fenton in 1796 and not properly edited until 1891. Some years ago a scheme was initiated for a series of county histories on the lines of the Victoria History of the English Counties, but it failed to materialize.

Carmarthenshire has never possessed a county history of any kind, but in 1930 the matter was seriously taken in hand by the London Carmarthenshire Society and the present volume is the first fruit of their effort. The Society can be congratulated upon the fact that during the years of financial depression such a scheme could be carried to completion in a county that is in part a 'special area'.

In two ways the plan of the present volume departs from some other efforts of the same kind. In the first place, it contains a short introductory chapter on the 'physiographical background', but with this exception it does not attempt to cater for the geologist, the botanist, or the zoologist. A great deal can be said on both sides of this question. The activities of man are conditioned by his surroundings, and historians have been very apt to neglect this essential aspect of their subject. On the other hand a specialist account of the botany, zoology or geology of a county goes beyond the requirements of the historian and seems to be more suited to publications that appeal to the students of these particular sciences. It is no easy matter to strike a just balance between claims of this kind.

Upon the second matter there will be more general agreement. The editor has treated his subject as the history of the county as an entity, and not as an agglomeration

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of histories of parishes and towns. His decision should meet with approval. The history of a tiny area is extremely useful, and in competent hands can be most delightful, but the county historian should select the weightier matters and neglect the smaller details. The history of England is something far beyond the sum total of the history of its component counties, and so the history of a county is something beyond the history of its individual parishes.

The volume opens with an Introduction containing the section on physiography by Mr E. G. Bowen, a section on the dialects to prove that we are really in Wales, and one on the boundaries by the Editor. The County as it exists is the result of the legislation of 1536 and 1542 but that represents the end of a long period of growth. The eastern portion is the ancient Welsh Kingdom of Ystrad Tywi (with the exception of Gower) but the western portion has been carved out of the old kingdom of Dyfed. The town of Carmarthen stood on the borders of the two kingdoms, but the Normans, on excellent strategic grounds, selected it as the central site of their invasion, and the county gradually expanded from the town. The castle was royal (not marcher) and after being termed an 'honour' and a 'castelry' the area subject to its jurisdiction was called a county after 1241. By the statute of Rhuddlan in 1284 it was assimilated to the new counties of North Wales and acquired a sheriff. Its development is therefore different from the palatine lordships of Pembroke and Glamorgan on its west and east.

The development of the boundaries is an exceedingly interesting illustration of the relations of upland and lowland peoples to one another within the same area. Carmarthen was successively a Roman fort and a Norman centre, and the county spread outwards from it. Nevertheless the outward boundaries of the County so formed are still for the most part those of ancient tribal divisions. They are river boundaries, natural and appropriate to an upland people, but hardly ever adopted by lowlanders. The exception is the western boundary, which seems to be the result of arrangements made late in the Middle Ages.

The chapter on prehistoric and Roman times is (with one exception) the product of past and present members of the staff of the National Museum of Wales, and is a worthy monument to the work of that great institution. It is quite certain that twenty years ago it could not have been written with anything approaching such precision and fullness. The subject is treated on the widest lines and the local developments correlated with the general European movements, and their distributions explained. The dolmens, for instance, are all of the western type and their distribution points to the existence of a traffic route from Carmarthen Bay to the northern coast of Pembrokeshire to avoid the storm-tossed headlands of St. Davids. In the Bronze Age this route becomes clear, and the small number of Beaker people also came across the sea from Somerset or Devon. The whole development has that continuity which Sir Cyril Fox has proved is so characteristic of a highland region.

There follows a masterly chapter by Sir John Lloyd on the age of the native princes. It is a confused and varying story, for the most part of local repercussions of the relations between Wales and England in general. It certainly does not suffer from lack of incident, but it is difficult to disentangle and difficult to memorize. In the skilled hands of Sir John Lloyd it attains order and coherence, and his chapter is invaluable for the history of Carmarthenshire, but will also (now that the *History of Wales* is out of print) be found of great utility for the general history of medieval Wales.

The succeeding chapter on the later Middle Ages (1282-1536) is not nearly so successful, but the author had to face great difficulties. As he says 'the sources available

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for a study of Carmarthenshire after the Conquest are limited in type and quantity, and but few have been edited'. The chronicles have ceased, and even a comparatively poor chronicle is far better than none at all. Consequently the author has to describe the organization of the County interspersed with such pieces of historical information as he could find, and if the resulting picture lacks finish it is due to the defects of the authorities and not of the author.

The volume ends with an admirable chapter by Mr A. J. Richard on the castles, boroughs, and religious houses. A better choice could not have been made because Mr Richard possesses in an unusual degree the knowledge of the historian and the archaeologist. He is at home in medieval documents and has also conducted excavations, so we are given a combination of archaeology and history that could hardly be bettered.

Finally there are three features that give distinction to the volume. The first is the admirable series of maps. They are all based upon the plain Ordnance Survey map (scale 4 miles to the inch) and upon it are plotted in the manner of an overprint the features characteristic of the various periods. The result is to make comparison easy and inferences certain. Behind the archaeological and historical writing are keen geographical minds.

The second feature, not always found in books of local history, is the excellence of the writing. Perhaps it is invidious to mention names when all is so good, but Sir John Lloyd, as everyone knows, is master of an admirable historical style, and Dr Mortimer Wheeler writes with a distinction rare among archaeologists. He can succeed in making even an excavation report readable.

Thirdly the publishers are to be congratulated heartily upon the production. The format will stand comparison with the issues of many of the private presses that specialize in the printing of beautiful books, and the binding is a real binding—not the 'casing' that usually has to do duty for it. It is a marvellous volume at the price, probably only rendered possible through the generosity of the subscribers.

H. J. RANDALL.

GAMLE GÅRDSANLEGG I ROGALAND (Fortsettelse). By JAN PETERSEN.
Oslo : Instituttet for sammenlignende Kulturforskning, 1936. pp. 100 and 65 plates.
15 N. kr.

The study of the domestic life and economy of our prehistoric forerunners by minutely examining their houses and fields has been a feature of post-war archaeology in other lands than Britain. In Norway the new orientation of research has been most successfully represented by Dr Jan Petersen, Director of the Stavanger Museum. The relatively level, granitic coasts of Rogaland must have been one of the least sparsely settled districts of Norway even in the Stone and Bronze Ages, judging by the wealth of the Stavanger Museum in relics from those periods. But it is only from the early centuries of our era that complete farms have so far been identified. Dr Petersen was first led to his successful search for their ruins by a study of old farm-names, and in 1933 published a first account of his researches. The present volume is a continuation and describes (in Norwegian, with adequate German résumé) new, and in some respects different, structures.

On the tiny island of Utsira, lying right out in the North Sea, were no less than ten ancient steadings, about half going back to the *Völkerwanderungszeit*. These are all

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quite small (say 8.5 m. \times 3.5 m.), one-roomed, rectangular cabins with sometimes an enclosed plot attached. As in all the Rogaland houses, the walls were built of small boulders, but posts, sometimes standing in recognizable sockets, at others resting on flat flags, helped to support the roofs. The latter were covered with birch-bark as in modern Norwegian farms: charred remains of the bark were discovered both on Utsira and at other sites. In one of these minute island farmsteads it was evident that bog-iron had been smelted—a vivid sidelight on the primitive economics of the Migration Period.

Earlier, and even more interesting, are the farms at Lyngaland, visited by members of the International Prehistoric Congress last August. On an open heath the congressists saw not only the foundations of two big farmhouses, but also the ruined dykes enclosing the attached fields. The moor is dotted too with circular heaps of stones—91 have been planned—exactly like the 'small cairns' on Scottish and Yorkshire moors. In his book Dr Petersen admits that most may have been funerary, though he found nothing in two that he excavated. Prof. Hatt, however, argues that the majority are not burial places at all, but just heaps of stones, cleared off the fields. The steadings themselves lie side by side with a narrow yard between them, from which leads a 'hollow way'—really a fenced cattle-track—at first very narrow, but widening like a funnel towards the moorland pastures.

One house was 62 m. long over all and divided into five rooms 5 to 6 m. wide, the other 28.5 m. long by 3 to 4.5 m. wide but undivided. Thresholds and hearths, paved and cobbled areas, are now easily recognizable, but it must have required very close observation to distinguish such from the general chaos of fallen stones and the naked rock that outcrops here and there. These large houses both go back to about A.D. 400.

Five houses at Havødl seem to be about a century older. They are the remains of a regularly planned village, such as can be seen, more complete, at three other sites not yet scientifically excavated. In all, the small rectangular houses are grouped radially round a circular or oval space with a barrow in its centre.

Thanks to the author's magnificent photographs, accompanied by an exhaustive but concise explanatory text and detailed plans, those who have not had the privilege of viewing the terrain, should be able to visualize both the ruins and their setting: the photograph of the cattle-track at Lyngaland is a model example of the treatment of a difficult subject. Air-photographs, having been taken in unsuitable lighting, do not help much, save for one view of the oval village of 'Dysjane' in Klepp. The architecture here described is strikingly different from anything known in prehistoric Britain. But the environment out of which it grew is so similar to that of our Highland Zone that the methods employed for its revelation give a lesson applicable to British excavation. And, after all, these Norwegian house-types, rather than the Atlantic-Celtic courtyard houses, are the ancestors of those still surviving in the West Highlands.

The excavations here described were not designed to fill museum cases or to gratify collectors. And in fact relics were few and unimpressive but in most cases sufficient to date the sites. Tracked stones have parallels in Scotland and North Ireland, and pots with milled rims from Lyngaland may be compared with some recently described from Antrim. At Lyngaland and in several other farms well-worked flints, including even a 'Garnes point', were found. Petersen explains them as remains of Stone Age visitants, but my own experience suggests that the manufacture of flint implements was not arrested by the coming of iron.

V. G. CHILDE.

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LES PEINTURES RUPESTRES SCHEMATIQUES DE LA PÉNINSULE IBERIQUE. By L'ABBÉ HENRI BREUIL. Vol. III, Morena, pp. 125, 59 plates. Vol. IV, Sud-est et est de l'Espagne, pp. 166, 45 plates. Paris: Imprimerie Lagny, 1933 and 1935.*

In these two splendid volumes the Abbé Breuil gives a complete account of a large series of rock-surface paintings, usually in red paint, which almost entirely belong to the Eneolithic period of Spanish prehistory. In one case the paintings actually overlie Palaeolithic naturalistic painting, which at least certifies their later date. But the general character of the paintings is totally different from anything Palaeolithic. Rigid formalization of human and animal figures, purely geometrical designs and actual representations of men holding bridled animals, all indicate a time long after the last fine Palaeolithic artistic period. The Abbé makes comparison, rightly, with the patterns on cylinder-idols and dolmen-stones of Spain and Portugal and on artifacts of the same period. He points out that the places where the paintings occur are not near habitation-sites, and that they are in consequence probably religious centres. Some of the symbols and signs painted on the rocks 'ne sont pas encore de l'écriture, mais y conduisent'. For they are certainly indications intended to convey information to others. Possibly the painted rocks were in fact centres for the distribution of information concerning travelling, hunting and the like. The plates and photographs of the paintings and scenery are magnificent. But the paintings themselves are totally devoid of artistic import.

THE ANCIENT BURIAL-MOUNDS OF ENGLAND. By L. V. GRINSELL. Methuen, 1936. pp. 240, 24 plates, 11 plans and diagrams. 12s 6d.

This is a kind of barrow-guide, and it is one that will be read and used by many readers of ANTIQUITY. There is no book covering the same ground—indeed, with the exception of a few specialized works of limited scope, there is nothing,† so far as I am aware, which deals exclusively with barrows except Thurnam's famous articles in *Archæologia*. Mr Grinsell writes for open-air people, giving abundant practical directions about inns, roads, views and distances. His style is rather ragged but his obvious enthusiasm for barrows redeems many shortcomings. When every criticism has been made, it remains a fact that the author knows a great deal about his subject, that he has visited many barrows and discovered many new ones, and that his knowledge is that of the serious student who has earned his right to a hearing by hard work and research. The illustrations are almost all good, and though some of them are on the small side they are on the whole adequate. More plans and sketch-maps, however, would have been welcome. Our growing debt to Major Allen for his incomparable air-photographs is once again apparent, and full use has been made of the Ordnance Survey collection of R.A.F. air-photographs, one of which adorns the dust-cover.

The first part of the book (pp. 13–104) deals with the history of barrow-study, type and chronology, burial customs past and present, folk-lore, local names, maps, field-work,

* We apologize to author, publisher and our readers for not having long ago published a review of the first two volumes of this important work. In spite of repeated efforts, we have been unable to obtain the review from the person to whom we sent it (with another book) on 16 August 1934.—EDITOR.

† Except of course Greenwell's account of his looting-expeditions—one of the most tedious books ever written.

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excavation. The last item is written admittedly with limited knowledge and experience and its inclusion does not add much to the value of the book. The diagram on p. 15 does not bring out what we believe to be an important characteristic of long barrows (both stone and earthen)—that their original shape was often if not always, that of a quadrilateral with the two longer sides slightly converging towards the western end. Weathering has generally obscured this feature, and many of the older plans are inaccurate in this respect. Several earthen long barrows, when seen from the air, appear strikingly rectangular. The facts about true and false passage-grave barrows are correctly stated, but the explanation given (p. 14) of the change from 'true' to 'false' is new and not altogether convincing. We commend the author for the foot-note on p. 23, distinguishing 'an expression of his own personal opinion' from opinions which have gained general acceptance. Neither is necessarily correct, but there is a difference, and it is most important, especially in a book like this, to call attention to that difference. It is said that the fine air-photograph of a cluster of Saxon grave-mounds on Derringstone-Downs, Kent (plate v) is the last record of them in a perfect state. Would any other country allow the graves of its ancestors to be obliterated by the builder? Reference should be made to the fine group on Barham Down and to others (now vanished) at Dinton, Bucks, and on Walton Bridge Green, Middlesex. The alleged long barrow at Southampton called Bevis' Mount is more likely to have been a Castle Mound; I know of no evidence that it was long, but it was destroyed in the nineteenth century and no adequate description of it has survived. A reference might have been made on page 47 to the opening of New Grange tumulus by the Northmen. The capstone of the Whispering Knights (p. 51) has long since disappeared; the burial-chamber is represented without one in the earliest illustration (by Stukeley). (Actually Stukeley's illustration is inconsistent with the text; I pin my faith rather on the former). We suggest that the 'coty' in Kits Coty House is to be connected with the term *coit* so often applied to burial-chambers, rather than with OE *cot* (p. 58). Mill-barrow southeast of Winchester is spelt *maelan beorh* in a charter of A.D. 961 (Birch, *Cart. Sax.* III, 1077); we are tempted to associate it with Mægla, the companion of Port and Bieda, who are said in the Saxon Chronicle to have landed at Portsmouth, 17 miles to the southeast, in A.D. 501. Whatever its origin, the name cannot be connected with a windmill. The reference to Cwichelmes hlæw (p. 102) occurs not in a charter but in the Saxon Chronical (sub anno 1006), though the identification is not above suspicion (the form Scutchamer Knob suggests an early form *scuccan mere*, the devil's pond). A *Cwichelmes hlæw* in the bounds of Ardley, Oxon (Kemble, *Cod. Dip.* 1289, 10th c.) must refer to another barrow of the same name. The mound of Lanyon Quoit (p. 108) is in my opinion certainly long. Mention should be made of the huge long barrow called Woolley barrow (parish of Morwenstow, Cornwall, 2 NW), first recognized by Major Bushe-Fox, who told me of it. There is another twenty miles to the south at Hendraburnick (parish of Davidstow, Cornwall, 10 SE), with cup-marks on the capstone.

The rest of the book is arranged topographically and consists of a detailed description of barrows in selected regions. The author is obviously more at home in the south of England than in the north, and Cumbrians and Northumbrians will perhaps consider that their barrows and cairns (including those with cup-and-ring marks) deserved some notice. A 'new and greatly enlarged edition', which we hope will be demanded, should redress the balance. The descriptions of excavations are numerous, if rather monotonous, but should be disinterred from the obscurity of provincial transactions. A few observations may be recorded here.

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The meaning of Boscawen-un is surely the down (*un*, also spelt *goon*, as in Goon-hilly) belonging to the place Boscawen (p. 120). I believe the circle on Beacon Hill, Mendip, to be modern. The Priddy Circles are of quite a different character from those at Thornborough (p. 124). The last book mentioned on p. 125 does not deserve an asterisk. The biggest barrow at Knowlton, Dorset, is shown by air-photographs to be a *bell* barrow, not a bowl (p. 135). A long barrow near the Long Stones, Avebury ('Neolithic Wessex', no. 18) is omitted on the sketch-map on p. 149; only the southeast end can now be seen, but Stukeley records it. Some of the long barrows south of Avebury had oolite in their construction (*e.g.* the West Kennet long barrow, no. 27 on the map of 'Neolithic Wessex'; see p. 151). The observation on the abundance of long barrows and scarcity of disc-barrows round Avebury is an important point (p. 152). Mention should have been made of those curious small round barrows with sarsen peristaliths (such as the Pennings and Winterdene circles). On the derivation of the place-name Marlborough (p. 152), if the mound in the college grounds was primarily a Castle Mound, it can hardly have given its name to the place, as it ought not to be earlier than the Norman Conquest. The cists in the Aylesford Sand Company's pit (p. 179) were probably of the Bronze Age, for a flat bronze axe and two bronze knife-daggers were found in an adjacent grave (*Proc. Soc. Ant. Lond.*, ser. 2, xvii, 376). We commend the discreet reference to the King Stone long barrow at Rollright (pp. 188-9) which we still firmly believe to be a long barrow in spite of the digging there! There are certainly *two* stone barrows, one in and one just outside the copse near the Cross Hands Inn (p. 190). On p. 196 Samuel Lysons (1763-1819) is confused with his nephew Canon Samuel Lysons (1806-77), the spoliator of Rodmarton and Ablington barrows, the opening of which is described in *Our British Ancestors* (1865). The description of Arbor Low (p. 200) should take into account Mr Stuart Piggott's remarks in *Arch. Journ.* 1931, lxxxviii, 155-6. 'Woad' is different from 'red ochre' (p. 201). 'Gorseddaus' is awkwardly divided and the hyphen omitted between pp. 202 and 203; the word occurs in a quotation, but 'gorseddau' is itself a plural form. We should like to know more about the alleged human face carved on the wooden coffin-lid of an interment at Gristhorpe (p. 212). We have not seen the original in the Scarborough Museum. Has it been published? The definitions of 'neolithic' and 'ring mound' (p. 224) could be improved.

All these remarks are criticisms of details. So far they may be justified; that is to say, so far as they represent errors and omissions, they indicate a certain carelessness and lack of finish. On the other hand none of them is of a kind to mislead the reader on matters of principle, or even of general importance. The book is refreshingly free from unsupported speculation; it represents, on the whole, the opinions of competent students, and the author's private opinions are not obtruded. He has plenty of time to improve it, and we hope he will do so. Meanwhile, with these reservations, we heartily commend it to those in search of knowledge.

O.G.S.C.

The review of volume 4 of *The Palace of Minos at Knossos* in the September number contained the following errors (which were not due to the Reviewer).

p. 366, line 9, 'Toronto' for Toronto; p. 367, 34, 'Tirqus' for Tiryns; 44 'in' for a; p. 368, line 30 '211' for 21; 31 'building' for blocking; 33 'Zuchetto', for 'zuchetto'; 34 '522' for 552.

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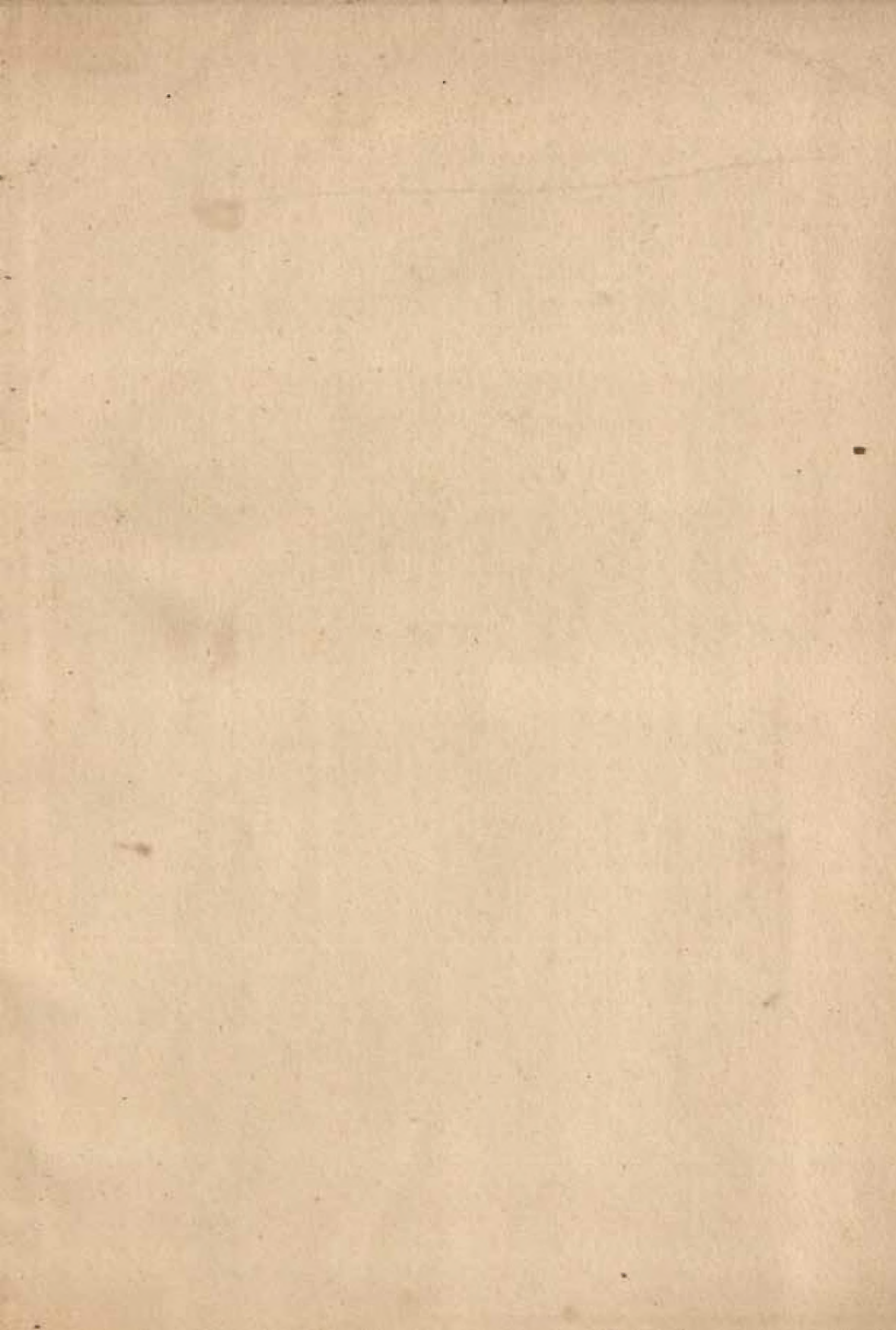
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